NECEDAH NWR - NARRATIVE REPORT - 1968

Necedah National Wildlife Refuge

Necedah, Wisconsin

PERSONNEL

David J. Brown - - - - - - - - - - - - - - - Refuge Manager
Howard A. Lipke - - to 1/4/68*- - - - - - - Assistant Refuge Manager
Fred B. Samson - - EOD 4/17/68 - - - - - Refuge Biologist
James R. Lennartson - - - - - - - - - - - Forester
Vern E. Rudolph - - - - - - - - - - - - - - Refuge Clerk
Robert W. Arrowsmith - - - - - - - - - - - Mechanic, Heavy Duty
Harold R. Carter - - - - - - - - - - - - - - Maintenanceman

TEMPORARY

William L. Renaker - 3/15 to 8/23/68 - - - Biological Technician
Paul E. Woggon - - - 4/1 to 12/31 - - - Tractor Operator WAE
Jack J. Jasinski - - 6/10 to 9/3 - - - - Student Aid YOC
David Coady - - - - 6/10 to 9/8 - - - - Student Aid YOC
Martin Orlando - - - 7/8 to 9/3 - - - - Student Aid YOC

*Promotion and transfer to Agassiz NWR, Minnesota

C O N T E N T S

I. GENERAL

A. Weather Conditions

	Precipitation			Max.	Min.
	Month	Normal	Snowfall	Temp.	Temp.
January	.98	1.02	7.50	50	- 23
February	.23	1.01	2.00	51	- 10
March	.68	1.91	1.00	72	7
April	4.15	2.65	1.50	78	13
May	6.35	4.38	____	88	26
June	6.50	4.98	____	90	37
July	4.72	3.77	____	88	39
August	2.35	3.33	____	93	35
September	8.69	3.35	____	84	34
October	1.57	2.27	____	87	18
November	1.11	2.24	1.00	65	16
December	2.98	1.36	30.00	54	-28
Annual Totals	40.31	32.26	43.00	Extremes 93	-28

Cold weather during the first 10 days of January combined with mild weather during the remaining days to produce average temperatures very close to the long-term normals. February weather was unusually sunny and dry. No major storms occurred and snowfall continued to be the lightest in years. The ground remained free of snow most of the month. Temperatures for March averaged 8 to 12 degrees above normal. The continued lack of snow cover and relatively dry soils, together with plentiful sunshine, helped produce persistently mild temperatures throughout the month.

Mild spring weather continued through April with temperatures about 4 degrees above normal. For the first time since last October precipitation turned above normal. During the first two weeks of May the weather was mild and dry. The remainder of the month was cloudy,

cool and over 6 inches of rain was recorded, which is approximately two inches over normal. During June temperatures averaged near normal but again precipitation was heavy with nearly two inches over normal.

July weather was considered pleasant with nothing unusual to report. Rainfall during August was well spaced and about normal. The month was characterized by many warm and humid days. In September persistent rains accumulated 8.69 inches of precipitation. No frosts occurred during this month which is very unusual.

The first hard killing frost occurred on October 5. Only light precipitation was received during the month. Several weeks of pleasant weather with temperatures in the 70's and 80's occurred during the middle of the month.

Temperatures during the second week of November dropped to the low 20's and most of the refuge pools became ice-covered. The first significant amount of snow fell on November 21 but melted soon afterwards. Less than 50% of the normal precipitation was received during the month. During the first half of December the weather pattern followed normal conditions. During the second half of the month a series of snow storms passed through leaving 30 inches of snow.

B. Habitat Conditions

1. Water

The water situation at Necedah Refuge during the past year was considered good. Above average precipitation resulted in ample water supplies for planned management of pools and few difficulties were had with surplus water. For the most part pool elevations were at approved levels throughout the year, and at times were slightly above these levels when heavy rains occurred.

Both the Goose Pool and Rynearson Pool No. 2 were drained in June to grow millet and smartweed. These were reflooded in the fall and received good waterfowl use, especially Rynearson Pool No. 2. Although reflooding these pools takes in the neighborhood of 1,000 acre feet of water, September precipitation of 8.69 inches assured their reflooding with no trouble.

The Sprague-Mather Pool which is approximately 2,200 acres in size had been almost completely drained during the winter months to facilitate repair of the stoplog channels of structure No. 29. This pool was refilled during spring runoff.

Toward the end of the year refuge pools were lowered somewhat to make room for initial spring runoff.

2. Food and Cover

With the removal of timber and prescribed burning of areas around the Rynearson Pools, native grasses are beginning to show up and cover conditions for waterfowl nesting are improving. Areas adjoining these pools were covered with jack pine and scrub oak a few years ago and are now beginning to be occupied by prairie species as big bluestem, little bluestem and Indian grass. The timber removal around the Rynearson Pools should be completed during the coming year and this habitat conversion program will eventually take in an area around the Sprague-Mather Pool and the smaller northern pools. The area covered by our controlled burns will then be about 9,700 acres.

Moist soil foods, primarily millet, smartweed and bidens, produced an excellent seed crop in Rynearson Pool No. 2. Waterfowl seemed to prefer this to agriculture crops and it was almost completely utilized before geese switched to refuge corn and buckwheat fields. The refuge agriculture crops were very good this year and were also well used by geese, turkeys, and deer. We feel we increased goose use of agriculture fields by burning the grass strips which alternate between strips of corn and buckwheat. The grass strips in the Canfield farm units and the Williams field were burned in late summer. The young green growth of grasses which emerged after the fires, was heavily used by the geese. The Williams field, approximately 40 acres in size, had up to 1,400 Canada geese using it as a browsing area. By contrast, last year when it was not burned it received no browsing use. The Canfield grass strips also received good use particularily around small pools created by fall rains.

Rynearson Pool No. 1 produced a good growth of aquatics. Wild celery, pondweed and Elodea made up the bulk of this food and were well used by waterfowl. Especially heavy use of the wild rice bed along the Williams road was made by wood ducks and mallards. This bed seems to have stayed the same size over the last few years.

The blueberry crop, which is outstanding during some years, was a complete failure this year and reduced the amount of this type of food available for wildlife. Other berry crops such as raspberry and dewberry were about average. These plants, while they do provide a lot of food for upland game and songbirds, are not as extensive compared to blueberry.

Oak mast which was very scarce last year improved considerably this year. Acorns during a good crop year are an important wildlife food on the refuge and are a mainstay in the diet of deer, turkeys, and squirrels.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

a. Whistling Swans

Whistling swans arrived April 5 when 15 were observed in Rynearson No. 1. This was also the peak spring population which is substantially below the five year average of 249. The last spring migrant swan left for the north on April 19.

Fall migration of swans began with the arrival of an estimated 400 on November 10. Several other large V's of swans were observed outlined against a blue sky over the refuge flying in a southward direction. The majority of swans left within a couple of days leaving only a small group varying from 15 to 25. This group remained on the refuge until a cold wave the first weekend in December after which they moved south. Swan use days decreased from last years total of 4,972 to 3,297 for this year but was above the five year average of 2,467. Rynearson No. 1 accounted for all the use days both during the spring and the fall.

b. Geese

Spring migration began with the arrival of 125 Canada geese during the second week of March. Approximately 10% of the pool areas had open water available for their use. Geese continued to increase in numbers with the peak population of 2,535 reached April 5. This peak was below the five year average of 2,743. The Sprague Pool and Rynearson No. 1 received the most use during the spring. Use days during the spring amounted to 68,650, well above the five year average of 53,971. By the beginning of May, we had reached our summer population level.

Production of geese this year to flying stage was estimated to be 20. Broods were observed on Rynearson No. 1, Pool 9 and Pool 19 by refuge personnel and an additional brood was observed on Pool 27 by an employee of the Wisconsin Department of Natural Resources. Production on the surrounding cranberry bogs, State lands and local reservoirs was good this year as the concentration of local geese staging on the Sprague Pool in late summer increased this year.

The local flock began to stage on the Sprague Pool during the last week of July, reaching a peak of 280 during the last week of August. A review last year of our banding records had indicated that the geese banded here before September 1 which comprise the local flock were being harvested near Burlington, Iowa while less than 1% of the geese banded during migration were being harvested in all of Iowa. This information indicated a possible separate migration pattern for our local geese and that they were being harvested in Iowa, not Wisconsin. During early August we were able to color mark 23 local geese by using a yellow and black leg band. These marked geese

along with the remainder of the flock stayed on the refuge and were last observed on the refuge September 2. Not a single goose was observed on the weekly census conducted September 6. Also, on September 6, we were notified by the Refuge Manager of the Louisa Unit, Mark Twain Refuge, which is near Burlington, Iowa, that several of our color marked geese had been captured in a cannon net and that they were part of a small flock of geese that had just arrived. This information provides a very strong indication that our local flock does have a different migration pattern than the other migratory geese and that they are leaving before the Wisconsin goose season opens. We are planning additional banding and investigation next year.

Fall migrant geese began to arrive the second week of September but only in small numbers. The first major influx occurred on September 28 with the arrival of an estimated 2,200 Canada geese. Canada geese continued to increase until a peak of 12,530 was reached during the week of October 6 - 12. Approximately 5,000 Canada geese remained on the refuge until November 26. On November 26, Canada geese were observed leaving Pool 2, testing the wind and departing. By the end of November only 120 geese remained and these departed in mid-December.

Goose use during the fall was concentrated on Rynearson No. 2, Iron-top, Field No. 1 and the Canfield farm units. Goose use days for the entire year amounted to 475,600 as compared to 329,979 for the preceding year. This total is also above the five year average of 445,338 and is the highest since 1964. Unit 2 which includes Pool 2 and most of the agricultural units received the most use accounting for 70.6% of the use days for geese during the fall migration period. Unit 1 received 12.8% and Unit 3 16.6%. Geese were not observed on the weekly census counts during the fall migration on Unit 4 although it received substantial summer use.

Blue and Snow geese use this year was very low. Snow goose use days amounted to 980 and Blue geese 770. This compares to 2,345 use days for Snow geese and 3,864 for Blue geese last year. Snow geese reached their peak of 80 on October 8 and Blue geese October 17 with a peak of 100.

c. Ducks

Spring migration began with the arrival of 25 mallards and 10 Goldeneyes the week of March 10-16. Migrants continued to arrive reaching their peak of 3,070 April 12. This peak is well below the five year average of 4,343. Scaup, ringneck, bufflehead and teal which use the Sprague Pool had the biggest decreases in use days. Other species which showed decreases were wood ducks, blacks and pintails. Rynearson No. 1 received the most use during the spring migration. Our summer population of approximately 1,300 was reached by early May.

Production of ducks this year was estimated to be 720. Production was estimated by multiplying the average nest success as determined by our dummy nest studies of 21% times the breeding pair count and multiplied by the average observed brood size. A similar estimate was obtained by using broods observed on brood counts conducted during June and July and random observations on a section of Pool 1 and then expanding this estimate to all pool areas. This was an increase from the 600 produced last year.

Duck use days during the summer amounted to 285,980 which is a decrease from last years total of 340,140 but above the 5 year average of 266,576. Major decreases in use were by blacks, blue-winged teal and wood ducks with increases in green-winged teal, mallard and scaup.

Fall migrant ducks began to arrive during mid-August. The duck population level continued to increase with the blue-winged teal peaking the first week of September. The peak population of 22,730 was reached October 8 and is 18% above the five year average. Mallards, baldpates and green-winged teal accounted for 81% of the use day total of 1,028,940. Unit 1 during the fall received 39.1% of the use, Unit 2 37.2%, Unit 3 19.5% and Unit 4 4.2%. Puddle duck use was mainly concentrated in Rynearson Pool No. 2 in Unit 2. Diving ducks used Unit 1 with the deeper areas of Rynearson Pool 1 receiving the most use. Total use days for the year amounted to 1,028,940, slightly below the 5 year average of 1,086,321.

d. Coots

The first migrant coots were observed on April 6 and reached a peak population of 1,820 on April 13. Our five year spring average is 620 birds. About 100 birds remained on the refuge during the summer months producing 20 young. The first fall migrants were observed on September 22. The fall population peaked at 4,780 birds on October 28. This is considerably below our five year average of 6,490. Total use days for 1968 amounted to 160,060, compared to 248,100 for 1967, a considerable decrease. The principal feeding areas were the Sprague-Mather Pool and Rynearson Pool No. 1.

2. Other Water Birds

Sandhill cranes were first observed on April 12. The fall peak of 350 during the week of October 20 - 26 was a record high for the refuge. Summer use was good with approximately 45 remaining all summer. One immature was observed on the east side of Rynearson No. 1 Pool and it is probable that up to 15 were produced here. Several pairs were frequently observed around Rynearson No. 1 and the Sprague Pool throughout the summer.

Sandhills began to concentrate around Rynearson 1 and 2 during late August. 170 Sandhills were counted on the east dike banding site while attempting to capture geese and was the largest single group of Sandhills observed. Sandhill use was divided between Rynearson 1 and 2 with well established feeding flights to the Williams field and the Canfield farm units. The population level flucuated between 190 and 270 during November with the last flock of 80 leaving during the last week of November.

Great blue herons were first observed this year on April 5 with the breeding population of 60 reached by May. An intensive nest search conducted in June found 26 active nests in the Sprague Pool rookery. An average number of 2 immatures per nest were found giving an estimated production of 52. No loss due to disease was observed. Last year many young herons died while in the nest but the cause was never determined. During the summer, herons were distributed on most of the refuge impoundments and ditches. The last observation was made during the week of November 3 - 9. Double-crested cormorants which have nested in the same rookery were not observed this year.

American bitterns, green herons and black-crowned night herons were occasionally observed near the margins of the Rynearson and Sprague Pools. Green herons were the most often observed particularly in the seepage area below the Sprague dike. A single observation of an American egret was made on Rynearson No. 2 Pool.

Pied-billed grebes were first observed this spring on April 25 and were present in limited numbers throughout the summer and fall. The peak population of 50 - 60 occurred during the fall migration. No other grebes were observed this year.

Sora and Virginia rails were occasionally observed throughout most of the refuge this year. During late September when heavy rains had flooded portions of the Williams field, both Sora and Virginia rails could be flushed from this area.

3. Shorebirds, Gulls and Terns

The most common shorebirds observed this year on the refuge were the killdeer, woodcock, common snipe, upland plover, lesser yellowlegs, pectoral sandpiper, spotted sandpiper, least sandpiper and the solitary sandpiper. The greater yellow legs, White-rumped, Baird's, Western and the red-backed sandpiper were also observed. An interesting concentration of between 250 - 300 sandpipers was observed on the sand and mud flats almost immediately after they were exposed when Rynearson No. 2 was drained. It was one ofthe largest single group of shorebirds observed during the year. The shallows and flats of the Sprague Pool attracted large numbers of these birds during the late summer and early fall.

The black tern, common tern, Forster's tern, ring-billed and herring gull were recorded during the year. The black tern was the most common with approximately 150 - 200 present in early June. The common and Forster's tern were present in limited numbers during late summer around Rynearson 1 and 2. Twelve herring gulls used the Sprague Pool during the fall migration. Migrant ring-billed gulls were observed over Rynearson 1 during late September. Neither gull spent the summer on the refuge.

4. Doves

Mourning doves were common on the refuge this year. Birds were most often observed near the agricultural units which was also the major nesting area. Doves began to concentrate in flocks in late July along the Williams road. The banding quota of 100 doves was accomplished with a minimum of effort by mid-August. The doves increased in numbers slightly during the fall migration and only a few remained until December.

B. Upland Game Birds

Winter carryover of the ruffed grouse population was very good due to a relatively mild and snow-free winter. Favorable nesting conditions resulted in good production with brood observations common throughout the refuge. Brood observations and adult sightings continued into the fall and hunting success on state lands around the refuge was very good.

Observations on the one remaining known sharp-tailed grouse dancing ground in the Blair field accounted for 4 dancing males plus one non-dancing male. A single brood was observed during June on the Blair unit and was the only brood observed this year. Three sharp-tails were observed on Highway 80 near the Blair unit on December 19. From these observations, it is estimated that the population has remained stable or increased slightly to an estimated 40 - 50. A planned spring burn will hopefully increase grass cover and eliminate encroaching willow making more habitat available for the sharp-tail. It is also hoped that the sharp-tail will extend itself into new open marsh and grass areas being developed around the pool margins.

The wild turkey population although experiencing a mild winter has decreased. Heavy rains during the nesting period combined with possible hunter disturbance due to a spring turkey season may have influenced nest success resulting in lower production. Brood observations were uncommon and broods of 10 - 15 observed in previous years were not recorded this year. Hunters took 11 toms from the 25 sections open on the refuge during the 16 day season. A total of 18 turkeys were taken including the refuge and the surrounding state land. Heavy snows during December have made conditions very poor for the turkeys. Concentrations

around the feeders are substantially below numbers observed in previous years. A very favorable spring nesting period will be needed to start the refuge population on the upswing again.

Both of the ground survey routes to determine the woodcock breeding population near the refuge indicated a decrease in the woodcock population this year. These routes, both in dry jack pine country, were not in good woodcock breeding habitat and undoubtedly contributed to the decrease in peenting recorded. Observations on the refuge during the summer were frequent, particularly along the Bewick Trail. Sightings during the fall, particularly in areas flooded by heavy rains indicated a normal migration.

The bobwhite quail was not observed on the refuge this year although a dead quail was found near refuge headquarters. Several males were heard singing during the spring near the Canfield agricultural units indicating a remnant population continues to survive. This is a marginal habitat area for quail and any increase in the population is improbable.

A single cock pheasant was observed this year during October on the Parham-Becker field. Pheasants are released near the refuge for hunters and the cock observed may have been a released bird. No other sightings or observations were made.

C. Big Game Animals

The refuge deer herd, which receives considerable hunting pressure, appears to be close cropped, young and healthy. The majority of deer killed are $2\frac{1}{2}$ years old or less with bucks being mostly spikes or forkhorns. Very few deer over $3\frac{1}{2}$ years old are taken. With regard to deer habitat, there is no evidence of overbrowsing. As of December 31, 1968, the deer population was estimated to be 950 which is approximately 20 deer per square mile of refuge deer habitat. This is based on field work including observations and pellet counts and on harvest figures. Production was estimated to be an average of 1 fawn per 1 doe and is based on field observations conducted during late summer.

D. Fur Animals, Predators, Rodents, and Other Mammals

The mink population is estimated to be between 100 - 150. Mink signs were observed near most of the refuge impoundments and one was removed on the Sprague dike during banding operations. Six mink were taken by trappers, 3 less than last year.

Muskrat numbers were estimated to be equivalent to last year's estimated population of 400 - 600. A house count was conducted to estimate the population level. Trapping success however was limited with only 76 taken.

Beaver activity was very apparent this year with culverts being plugged on the Finley, Sprague, Bewick and Canfield roads. Colonies are located on most of the major ditches flowing through the refuge. Four beaver were live trapped and transplanted to other areas during the summer. Fifty-eight were removed by trappers in January and February during the regular beaver trapping season.

Otters were observed this year on the Sprague Pool, Rynearson No. 1, Pool 18 and 19. Otter signs are evident around most of the refuge impoundments indicating a use by them of much of the refuges waterways.

Raccoons continue to be a problem with predation by them reducing our waterfowl production and interfering with our banding operations. Forty-six were removed by refuge personnel during banding operations and 53 by trappers. A predator control plan which has been submitted for approval should reduce the raccoon population around our pool margins at least during the waterfowl nesting season.

Striped skunk were often observed this year particularly around the Rynearson Pools. Three skunks were removed by traps placed around a pen holding several mallards. Skunks also were often observed around the Canfield agricultural units. The increased number of sightings this year would indicate a slight increase in the population level.

Badgers are present in limited numbers with single badgers seen east of Rynearson 1 and Pool 19. Diggings thought to be by badgers were observed near Pool 13 and the Parham-Becker field.

The opossum population has probably increased as the number of observations recorded this year have increased. Three opossums were caught in traps set for raccoons to protect several penned mallards.

Weasels were not observed on the refuge this year although the least, short-tailed and long-tailed weasel have all been observed on the refuge in previous years and probably still continue to use the refuge.

Woodchuck are present in limited numbers and several were observed this year.

Red fox were commonly observed on the refuge with most observations made near the Rynearson Pools. Active dens were located east and west of Rynearson 1, north of Rynearson 2, and south of the Sprague-Mather road near the upper Canfield farm unit. Gray fox were not sighted this year but are probably present in limited numbers.

Coyote numbers remained stable from last year. Coyotes were frequently seen in the Williams field, Canfield farm units and near Pool 19. Coyotes were often heard while banding near the Williams field, Sprague site and Rynearson No. 1 Pool.

The squirrel population increased this year from the low level of last year. This years good mast crop should provide a good basis for winter carryover. Gray, red, fox and flying squirrels are found on the refuge with the gray and red the most abundant.

Cottontail rabbits are located on several areas on the refuge but the population level remains low. Snowshoe hares were not observed this year.

E. Hawks, Eagles, Owls, Crows, Ravens, and Magpies

Red-tailed, Marsh and Sparrow hawks were the most common hawks on the refuge during the spring and summer. A few Cooper's and Goshawks were sighted during the same period. Red-shouldered, Rough-legged and Broad-winged hawks were observed using the refuge during migration.

It is probable that the red-tailed and marsh hawk nested on the refuge. Two wood duck boxes were used by Sparrow hawks as a nesting place. An immature Cooper's hawk was caught in a dove trap indicating that Cooper's also nested on the refuge. An adult Sparrow hawk was also caught in a dove trap.

Bald eagles used the refuge during the spring and fall migration periods as well as during July when single eagles were observed over the Sprague and Rynearson 1 Pools. Peak numbers reached 15 during October with the greatest concentration around the Rynearson Pools. The wintering population of eagles located below Petenwell and Castle Rock hydroelectric dams was 25 including 3 golden eagles. This area is approximately 6 miles from the refuge.

Several golden eagles used the refuge during the fall migration. One golden eagle was regularly observed along the middle Canfield for a two week period. We also housed a golden eagle captured by a muskrat trapper until it regained its health. It was released near Rynearson No. 1 Pool after being in the refuge's care for over a month and successfully returned to its wild state.

Osprey were observed during the fall migration soaring over the Sprague Pool. Ospreys were not observed on the refuge during the rest of the year.

Great horned owls are the most common owl on the refuge and sightings were frequent. Screech, long-eared, short-eared and saw-whet owls are refuge residents but uncommon. One short-eared owl was observed regularly near the forest edge above Rynearson 2 Pool.

Crows are common throughout the year with a peak of activity and concentration on the refuge during early fall. Crows undoubtedly contribute to our predator problem.

F. Other Birds

Prominent nesters this year included the yellow-headed blackbird, red-winged blackbird, eastern kingbird, marsh wrens, Baltimore oriole, and the great crested flycatcher. Tree swallows were common on the Sprague Pool and purple martins were abundant around their houses.

Fall observations included the pileated woodpecker and a large migration of flickers and nighthawks. Evening grosbeaks and several species of sparrows were present this fall.

Bluejays, black-capped chickadees, common redpoles and pine grosbeaks were often observed on the refuge this winter. Slate-colored juncos, tree sparrows, downy and hairy woodpeckers and an occasional white-breasted nuthatch have been observed near a feeder.

G. Fish

Northern pike, carp, suckers, perch and bullheads are present in most refuge pools and ditches. Fishing is limited to the Sprague Pool and northern pike make up the bulk of the catch. Fishermen reported generally good luck with the biggest pike reaching 6 pounds.

H. Reptiles

Observations of reptiles are made as they may occur in conjunction with routine refuge activities. The following species were observed this year:

Common snapping turtle
Blandings turtle
Western painted turtle
Five-lined skink
American toad
Northern leopard frog
Eastern garter snake
Eastern hognose snake
Northern red-bellied snake

The common snapping, Blandings and Western painted turtle were often observed egg laying along the Williams road, east dike road and Sprague dike.

I. Disease

During the summer, 2 Canada geese were captured which were weak, emaciated and unable to fly. They were kept briefly in a cage but died shortly after capture. The carcases were forwarded to Dr. Dan Trainer, U. of Wisconsin but the results of the autopsy were inconclusive as to cause of death. Lead poisoning had been suspected but was not the cause of death.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Water Management

Installed new stoplog channels in Dam No. 29
Installed water gauge on Dam No. 29
Made new stoplogs for Goose Pool Structure
Cleaned and burned dead snags from the northeast port of the Sprague-Mather Flowage
Cut undesirable vegetation from around Pools No. 1 & No. 2.
Levelled rip-rap on Pool 18 dike.
Dug 2/3 mile drainage ditches in Pool No. 2
Put in riser and culvert for drainage and water control north end of Pool No. 2
Blasted 12 potholes with ammonium nitrate

2. Road and Trail Maintenance

Constructed 3/4 mile of new fire break around Pool No. 2
Rip-rapped Canfield road culverts
Constructed 1/3 mile of road to new observation tower, placed 168 yds of gravel on road and turn-around.
Graded and seeded 1 mile of Coaver road west of Williams road

3. Fencing and Posting

Replaced 150 old shield type boundary markers with new blue goose signs, also replaced 25 old posts.
Posted open and closed areas for spring turkey season, early and late archery season, and deer gun season.

4. Buildings

Quarters No. 1:	Tiled the bathroom
Quarters No. 8:	Painted exterior and interior rooms of first floor, installed new bathroom fixtures and tile in bathroom. New well and sump pump installed
Quarters No. 11	Installed new furnace motor.
Shop	Installed new landing on north end of loft Mounted new shelf brackets in southeast corner New shingles put on roof.
Oil House	New shingles put on roof.
Carpenter Shop	New shingles put on roof.

Secondary Shop	Three new fiberglas overhead doors installed, new woodwork painted, installed one new window.
Office	New box for refuge hand-out informational material installed on office door.

5. Equipment

M-37 and M-45 fire trucks painted and first aid kits mounted Hose reel installed on M-37 fire truck, 4-way flasher installed on M-45 fire truck. Install winch on M-45 fire truck

Rebuilt Case tractor engine, installed overhead roll bars, painted tractor

Constructed attachments for mounting V snow plow to 6x6 dump truck

Made and installed stationary cutter ahead of coulter on fire plow

Made new heavy duty control links for bucket control on Oliver loader

Installed new seat belt on TD-6 tractor

6. Miscellaneous items

Constructed waterfowl cage 12' x 6' x 6'.

Installed pair of binoculars and metal case on observation tower

B. Plantings

1. Aquatics and Marsh Plants

Japanese and Proso millet was seeded in both the Goose Pool and Rynearson Pool No. 2. Approximately 1900 lbs of seed was broadcast by hand onto mud flats which were exposed when the pools were drained. This millet which was seeded, combined with wild millet, smartweed and bidens in the Rynearson Pool produced an excellent crop. Success was not nearly as good in the Goose Pool primarily because the pool bottom had more dead vegetation which prevented seed from reaching the soil and germinating. Discing pool bottoms is the answer to this and we are beginning to dig lateral drainage ditches so that we can get out into the pool area with a tractor as soon as they are drained.

2. Trees and Shrubs - None

3. Upland Herbaceous Plants - None

4. Cultivated Crops

Because we cannot get farming permittees, all cultivated crops were put in by refuge personnel. Farming efforts were again concentrated in the central farm units of the refuge which include the upper, middle and lower Canfield, Irontop, and West Yellow fields. These fields are laid out in alternate strips of corn, browse and buckwheat. A total of 47 acres of corn and 51 acres of buckwheat was planted. Browse acreage of these fields is approximately 170 acres. Most of the browse strips are a mixture of tame grasses although wheat and rye were planted in the West Yellow and Irontop fields. This year a hybrid seed corn called Weathermaster was planted and resulted in a good crop. We picked a sample and calculated the yield at 97 bu/acre. Buckwheat strips were of good density and we estimated the yield at 25 bushel per acre. Buckwheat ground was only worked once during farming operations. This was accomplished by hooking the rotavator, packer, and drill together so that the area was rotavated, packed, seeded, and fertilized in one operation. This seemed to work well and was a real time saver.

Alfalfa in the Laske and Carpenter fields, a total of 52 acres, was topdressed with 150 lbs/acre of 0-0-60 to maintain the stand. These fields received good use by geese, turkeys, and deer.

The Parham-Becker field which was cleared several years ago but has not seeded in well, was limed this year under the Soil and Moisture program. During the coming spring it will be fertilized and seeded to a grass legume mixture.

C. Collections and Receipts

1. Seed or other Propagules

No seed was harvested on the Necedah Refuge this year. We did pick 197 bushel of corn to be used as bait for next years banding and received 20 bushel of proso millet seed from the DeSoto Refuge.

2. Specimens - None

D. Control of Vegetation

The following weed and brush control activities were carried out during 1968:

1. 2,4,D was used to control willow in portions of Rynearson Pool No. 2. The water was completely drawn down to permit access to the willow and prevent water contamination. A total of 58 acres was treated with a success of 80%. Spraying was limited to only a week because the mist blower broke down and repair parts could not be found in the United States. We are still expecting the parts from Germany.

2. Atrazine was used on our 47 acres of corn. It was applied with the Hanson boom sprayer. The success of spraying was shown in the good yield of corn for this area which amounted to 97 bushels per acre.

3. Atlas-D Debarking compound with animal repellent was used on 220 acres of oak. With the use of this chemical loggers are able to haul oak to the mills all year. Without debarking, paper mills will accept only a limited amount of oak pulpwood. Also, land clearing operations are speeded up around our pool margins as there is no problem of stump sprouting. No adverse affects to wildlife were noticed after the treatment.

E. Prescribed Burning

The objectives of the 1968 burning program were as follows: to improve waterfowl nesting habitat, keep and help convert upland areas into grass for sharp-tailed grouse, to rid areas of slash and to study the ecological changes that take place after fire. In 1968 a total of 1,324 acres were burned.

The largest burn took place around the Rynearson Pools on land that had been recently cleared of all timber. In this area 775 acres was burned and much of the slash from timber harvest has been eliminated.

The refuge is constantly fighting a battle to keep woody vegetation from completely dominating some areas. A total of 329 acres spread over 4 different areas were burned to help control this undesirable vegetation. By burning these areas it is hoped that they will remain open and eventually increase the sharp-tailed grouse population. These areas are also beneficial to other upland game species.

A total of 220 acres was burned in the scientific area. This is a study area of an oak-jack pine type. With the use of fire it is anticipated that the area will become an oak savanna type. This was the second burn on this area and it is already opening up, with bluestem grasses growing in these openings.

This year we conducted a burn in June and August, the first summertime control burns tried on the refuge. These burns were aimed at killing oak stump sprouts. It was felt that by burning in June after the sprouts had leafed out their root reserves would be low which would prevent re-sprouting the next year. With the hotter air temperatures occurring during summer it should also be easier for fire to heat the bark of woody plants to the 140 degrees necessary to kill the cambium layer. Results looked good, but we will have to wait until spring to see the final results. We are especially interested in seeing how summer-time burning works out for several reasons. First, it will greatly expand the number of days suitable for control burns. Secondly, if it turns out to be more effective than spring burning we can wait until July and August and be sure that all nesting is over. Third, since summer burns move over the ground slower there will be much less chance of a controlled burn ever getting out of hand.

1968 Fire Weather and Costs for Controlled Burns

Date	Area Burned	Acreage Burned	Temperature	Spread Index	Buildup Index	Relative Humidity	Wind	Labor Costs	Equipment Cost	Total Cost	Cost/Acre
3-13-68	1a	350	33	45	42	24	W-10	$ 47.93	$ 3.12	$ 51.05	.15¢
6-19-68	2	48	75	22	15	42	N-15	10.22	1.97	12.19	.25
8-13-68	4	66	87	20	27	40	NW-10	58.73	10.34	69.07	$ 1.05
8-14-68	4	15	68	6	29	43	-	21.89	10.04	31.93	2.13
8-27-68	2	40	68	4	19	57	SE-4	17.59	1.86	19.45	.49
8-27-68	3	20	68	4	19	57	SE-4	11.89	1.56	13.45	.67
10-23-68	Scientific	80	56	18	27	64	W-10	60.27	12.10	72.37	.905
10-30-68	Scientific	140	51	18	20	57	SE-8	53.92	75.37	129.29	.924
10-31-68	1b	425	67	20	22	67	SE-12	101.37	19.57	120.94	.28
12-11-68	Coaver-Canfield	140 1324	46	39	39	59	SW-15	31.95 415.76	2.62 138.55	34.57 554.31	.247

Average cost/acre burned 0.419

Average cost, burns over 50 acres 0.397
Average cost, burns under " " 0.626

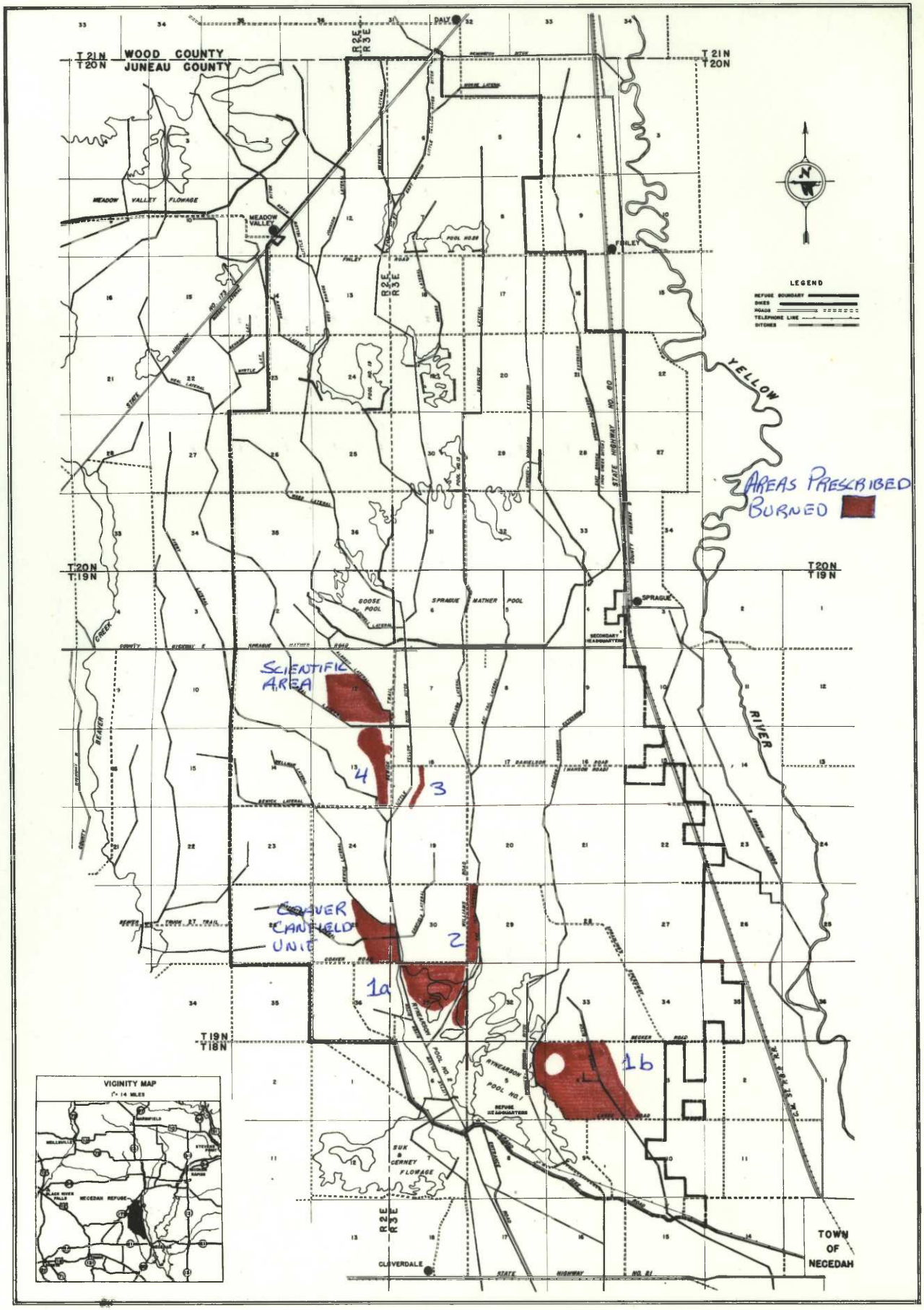
Equipment cost is operating expense and fire break construction; does not include depreciation.

NECEDAH NATIONAL WILDLIFE REFUGE

JUNEAU COUNTY, WISCONSIN

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



COMPILED IN THE BRANCH OF ENGINEERING

MINNEAPOLIS, MINNESOTA JANUARY, 1960

FOURTH PRINCIPAL MERIDIAN

Scale

TOWNSHIP DIAGRAM

MEAN DECLINATION 1960

3R WIS. 274 405

F. Fires

In 1968 the refuge had one wild fire. It occurred on the 8th of May and burned a total of 65 acres in a little over two hours. The fire started when strong winds up to 45 mph, blew an aspen tree across a power line crossing the refuge. A State lookout tower near Babcock Ranger Station spotted the fire and notified the Necedah Ranger Station who in turn notified the refuge. All three stations sent men and equipment to the fire because of the extreme fire danger (buildup index 38, fine fuel spread index 100, timber spread index 73). Due to distance involved, Babcock arrived first, Necedah Ranger Station second and the refuge third. Four crawler tractors with fire plows (one was a refuge unit and three were state) soon had the fire contained. State assistance on refuge fires is in accordance with the Cooperative Agreement between the Bureau and the Wisconsin Department of Natural Resources.

Fire danger was very high to extreme during the spring, low to moderate during the summer and moderate to high during the fall. Following is a breakdown of the number of days in certain buildup index categories for the period March 12 thru December 2, 1968:

Low	Moderate	High	Very High	Extreme
0 - 9	10- 19	20 - 29	30 - 39	40 +
74 days	78 days	59 days	25 days	30 days

During many of the days in the spring the refuge was on fire standby. During this period of time there were many large (Class E) fires in the surrounding area. By the middle of May fire danger decreased rapidly and there were only 3 days that had an extreme fire danger rating the rest of the year.

IV. RESOURCE MANAGEMENT

A. Grazing

One grazing permit was issued and amounted to 63 AUM's. The area around Necedah continues to have few cattle and there is no demand for grazing land. This was the first permit issued for grazing in 3 years even at the low rate of 20¢ per AUM.

B. Haying

Two permits for haying were issued and 40.85 tons of hay were harvested. This hay was alfalfa cut from the Laske and Carpenter fields and tame grass hay from the grass strips in the Canfield units. We had hoped these permittees would cut more area than they did so that hay fields would be short and provide better browse conditions during fall migration. As it turned out we had to burn some of the hay fields to get the conditions we wanted.

C. Fur Harvest

The beaver trapping season for this area of the state opened on January 13 and continued through March 17, 1968 with a limit of 35 per trapper. There was considerable interest shown for trapping on the refuge by local trappers and it was necessary to have a public drawing. Three permits were issued and 58 beaver caught. Even with the removal of this many, some trouble was experienced during the summer and fall months with beaver plugging culverts under township roads throughout the refuge.

During the fall burbearer trapping season, four permits were issued through a public drawing. The mink and muskrat season opened on November 2 and continued thru December 31. Trapping for raccoon, weasel, skunk, fox and coyote was from November 2 thru January 31, 1969. The following animals were taken: muskrat 76, mink 7, raccoon 53, fox 1, and coyote 1.

D. Timber Removal

Sixteen pulpwood permits were in force during 1968 and 7,229.18 cords of wood were harvested. Total revenue amounted to $18,694.60. The table below gives the cordage removed by species and the average price received:

Specie	Cords	Average Price/Cord
Jack pine	4,756.92	$ 6.17
Oak	1,615.26	1.16
Aspen & Birch	857.00	1.00

As of December 31, 1968, 11 permits were still in effect. A complete summary of all wood harvested is included on Form NR-11.

This year we experimented with new types of cutting practices in jack pine to find an effective method to naturally regenerate the species. We used a seed tree method and small patch cuts. Coupled with strip, and clear cut and burn methods it is hoped that one of these methods will naturally regenerate adequately stocked jack pine stands.

E. Commercial Fishing - None

F. Other Uses

One permit was issued to a beekeeper to set up an apiary in the Canfield agriculture fields. A charge of 10¢ per hive for 20 hives was made. Bees are especially helpful in the agriculture fields for buckwheat pollination.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Banding General

A total of 424 birds were banded this year. These were 17 wood ducks, 306 Canada geese and 101 mourning doves.

B. Wood Duck

This years wood duck banding total was the lowest since wood duck banding was started at Necedah. Heavy rains in early fall resulted in a movement from the refuge to local river bottoms. These river bottoms have large stands of oak which were flooded making a very good mast production available for the wood ducks. Heavy rains also raised refuge water levels preventing the use of prime wood duck banding sites. The 17 that were banded were all caught in walk-in traps or while banding our local geese. No wood ducks were caught under the cannon nets while banding the migratory geese or capturing mallards for propagational purposes.

C. Canada Geese

In addition to 20 local geese that were banded and color marked, 286 were banded during the goose hunting season. Several good chances to cannon net large numbers of geese were passed by in order to capture mallards for propagational purposes. Eagles, raccoons and other predators continued to occasionally interfere with banding operations.

D. Mallard Banding

Necedah did not have a quota this year for banding mallards but did have a requirement to provide wild males for breeding purposes for the McGraw Wildlife Foundation. One hundred fifty-one drakes were captured for McGraw. Two hundred thirty-five drake mallards were banded prior to release at Necedah in June. These 235 birds were captured last year for propagational use at Jack Frost Game Farm and returned to the wild this year.

E. Mourning Dove Banding

Necedah received a quota of 100 doves which was completed by mid-August. All trapping was done along the Williams road during late July and early August. Losses to predators was minimal although a sparrow hawk and a Cooper's hawk were caught in the dove traps and released.

F. Artificial Waterfowl Nesting Structure

This was the third and final year of a study to evaluate a variety of artificial nesting structures as to use, design, and

protection from predators. Also, to determine what factors limit the use of artificial waterfowl nesting structures such as breeding population levels, available habitat, etc. This study was conducted by graduate student William Renaker as field work for a masters degree thesis from Western Illinois University. During the 3 year study waterfowl failed to use the 134 basket type platforms. Only one goose laid eggs on a structure and this nest was deserted before it hatched. Nine goose nests were lifted onto platforms during the study to imprint the young to these structures. Five of these lifts were successful. It was also learned that raccoons could climb onto some of the platforms. Mr. Renaker's report in final form is expected this month.

G. Simulated Nest Study

In conjunction with the artificial nesting structure study a simulated nest study was conducted to determine predator activity. Results of this study indicate that predation is a major deterrent to waterfowl production at Necedah Refuge. A summary of this study is shown in the following table.

Percent destruction of 200 eggs per phase of the simulated nest study:

Year	Percent Destroyed Phase 1	Percent Destroyed Phase 2
1966	86.0%	47.5%
1967	95.0%	66.0%
1968	96.0%	64.0%

Based on the results of this study an Animal Control Plan aimed at nest predators has been written and we hope to have it in effect during the coming spring.

H. Bureau-Frost Mallard Release Project

This was the second year the Bureau was involved in a study in cooperation with the Jack Frost Game Farm at Coloma, Wisconsin. The study involves the banding and release of game farm raised ducklings into the wild to evaluate their survival, distribution, reproductivity and morphology. This year a total of 5,361 3-week old ducklings, game farm x wild bird cross, were banded and released at Horicon, Necedah, and Mead Wildlife Management Area in Wisconsin. As a part of this project some of the ducklings were raised under normal game farm conditions and some were raised in ponds located away from buildings where they never saw people. Banding returns from 1967 indicate these ducks migrated and recoveries were as far south as Louisiana and east to New York. The study is to run one more year and a complete analysis of band recoveries and observations will be made.

VI. PUBLIC RELATIONS

A. Recreational Uses

Necedah's public use increased from 30,525 total visits last year to 41,807 this year. With the addition of a traffic counter, we were better able to determine use on all areas of the refuge and increase the accuracy of our estimates.

The recently completed observation tower overlooking Rynearson No. 1 Pool was heavily used during the fall migration period. Peaks in use occurred in September, November and December which coincide with the openings of the 3 deer seasons.

Turkey hunters and berry pickers were the major spring refuge users. Turkey hunting was good with 960 hunters using the refuge while berry picking due to a lack of berries, was very poor. Summer use was mainly by fishermen and sightseers. The number of sightseers interested in wildlife was the major summer use with fishing being a close second. Summer and winter fishing is allowed on the Sprague Pool. Most of the fish caught were northern pike from 15 to 22 inches long. Ice fishing this winter has been very limited due to heavy snows preventing access to the Sprague Pool.

Hunting continues to be the major public use on the refuge when measured by use-days. Necedah is well known for its deer hunting. Opening day of early bow season attracted 1500 hunters while 4,542 hunted the refuge on opening day of the late bow season. 3,261 gun hunters used the refuge during the 9 day gun season.

A self-guided auto tour pamphlet was written this year and is now being printed. It will show different management techniques being used on the refuge and where the wildlife should be able to be seen. A recreational plan is being written which will include a nature trail near the observation tower and additionalinformation bulletin boards. We expect the public use of Necedah to continue to increase along with the area around Necedah which is experiencing an increase in recreational use.

B. Refuge Visitors

Date	Name and Organization	Purpose
1/19	Dr. Wm. E. Green, BSFW, Winona, Minn	Goose nesting structures
1/19	Herb Dill, BSFW, Mpls.	"
2/27	Forrest Lee, BSFW, NPWRS, Jamestown N.D.	Frost Mallard Release
3/12	Wm. Aultfather, BSFW, Mpls	Forest management
3/12	Gene Mosely, Wis State Water Board	Water management
3/26	Earl Hilfiker, Rochester N.Y.	Tour refuge
3/28	Dr. Wm. E. Green, BSFW, Winona	Necedah-1 Study
4/4	Ray Anderson, Prof. Stevens Point U.	Refuge tour
4/9	Earl Eliason, BSFW, Div Eng. Mpls	Tower construction

Date	Name and Organization	Purpose
4/11	Larry Gregg, WCD, Horicon	Woodcock counts
4/11	Jim Hubert & wife, BSFW, Minn	Tour refuge
4/20	Prof. Wagon, Wis. State U.	Tour refuge
4/15-20	Howard Lipke, BSFW, Agassiz Refuge	Mallard observations
5/1	Gene Mosely, Wis State Water Board	Water management
5/8	Ira Wallingford, BSFW, LaCreek Refuge	Equipment transfer
5/12	George Page, Prime Hook NWR, Del.	Tour refuge
	Douglas Muller, Brigantine, NWR N.J.	"
	Wendell Metzen, Wichita Mts NWR,Okla	"
	Arthur Lee Fibbs, Bombay Hook NWR	"
5/14	Verlin Carter, Reg. For. Atlanta, Ga.	"
	Wm. Aultfather, Reg. For. Mpls	Forest management
	Jim Gritman, Forester, Wash. D.C.	"
5/16-17	John Winship, BSFW, Mpls	Breeding pair count
5/24	Lyle Miller, BSFW, Saf. Officer	Inspection
5/28-29	Lynn Greenwalt, BSFW, Ref. Mpls	Inspection
5/29	Dr. Wm. E. Green, BSFW, Winona	Necedah-1 Study
	Dr. Wa rnock, Western Ill. U.	"
5/18	Al Johnson & wife, Tamarac Ref	Tour of refuge
5/19	Dr. & Mrs Ericson, Purdue U.	Tour of refuge
5/24	Larry Gregg, WCD, Horicon	Dove banding
7/5	Don Ambrosen, BSFW Back Bay NWR	Tour of refuge
7/17	C. J. Wandrey, WCD, B.R. Falls	Forest management
7/17	James Monnie, BSFW, Ref. Mpls	Inspection
7/29	Clair Rollings, BSFW, Ref. Mpls	Soil & Moisture
8/12	Rollie Osternick, WCD, Wauwatosa	Waterfowl banding
	Frank Haene, WCD, Juneau, Wis.	"
8/13	Jim Gritman, BSFW, Wash. D. C.	Timber management
8/14	Mike Brownlee, Horicon NWR	Courtesy call
8/14	Dr. Wm. E. Green, BSFW, Winona	Necedah-1 Study
8/15	Robert Dries, WCD, B.R. Falls	Tour of refuge
	Ben Hubbard, WCD, Babcock, Wis	"
	Roger Amundson, WCD, B.R. Falls	"
8/27	Clifford Germain, Madison, Wis.	Scientific area
	Prof. Grant Cottam, U.of Wis.	"
9/3	Richard Johnson, BSFW, Eng. Mpls	Inspect Q-8
9/4	Gordon Landphier, WCD, B.R. Falls	Fire control
	Ralph Plowman, WCD, Friendship	"
10/16	Dave Hames, WCD Warden, LaCrosse	Cut radio tape w/Brown
10/16	Lyle Miller, BSFW, Safety Off.	View banding
10/22	Frank King, WCD, Madison, Wis.	Tour of refuge
	Ben Hubbard, WCD, Babcock, Wis.	"
11/15	R. Weier, BSFW, Mark Twain NWR	Def. Driving Course
	Lloyd Lindvall, USGMA Oshkosh	"
	Fred J. Marquardt, BSFW, Horicon	"
	Harold Bushweiler, BSFW, Horicon	"
	Lyle Miller, BSFW, Safety Off.	"
12/17	Ken Brown, LaCrosse Tribune	News article on eagle
	Dave Hames, WCD Warden, LaCrosse	Release golden eagle
	Cal Clark, WCD Warden, Sparta, Wis	"
12/18	Fred Fields, Juneau Co Res. Agent	Request for slide talk

Frequent callers: USGMA Miles Camery, Madison, Roger Priest, Eau Claire, Clarence Smith, local WCD Game Mgr., Ron Kubisiak local WCD Warden

C. Refuge Participation

1/17 Brown attended Annual Boy Scout Dinner, Necedah

1/23 Rudolph and Brown attended meeting of Little Yellow River Drainage District at Mauston, Wis.

1/28 - 2/2 Brown and Lennartson to Marion, Ill. Law Enforcement Workshop

2/5-7 Brown to Minneapolis for meeting of Bureau and Wisconsin personnel regarding goose management in Wisconsin

2/12 Brown to Madison, Wis. attend public hearing on turkey season.

2/28 Lennartson to U. of Minnesota attend prescribed burning seminar sponsored by Minnesota Chapter of the Wildlife Society.

2/28 Brown to Waupun, Wis. attend public meeting on Canada goose management.

3/28 Brown to Black River Falls, Wis. to meet with WCD personnel and Ray St. Ores of Wildlife Services on Camp McCoy Wildlife Plan.

4/15 Brown to Mauston, Wis. attend annual county conservation fish and game hearing.

4/11 Brown met with WCD personnel, Ray St. Ores, WS, and Julian Hutchinson, forester at Camp McCoy on Camp McCoy Wildlife Management Plan.

4/20 Brown conducted tour of refuge for group of ornithology students from Wisconsin State University.

5/1 Brown met with WCD personnel, Herb Dill, Forrest Lee and Horicon Refuge personnel at Frost Game Farm, Coloma, Wis. on 1968 Frost Game Farm Mallard releases.

5/28 Brown met with Fred Fields, Juneau County Resource Agent, Mauston, Wis. regarding TV program on Juneau County.

6/18 Brown appeared on Madison, Wis. TV gave talk and showed slides on refuge.

6/24 Samson conducted tour of refuge for group of annual 4-H award winners from Wisconsin.

7/11 Samson gave tour of refuge to Mauston 4-H group.

7/17 Lennartson conducted tour of refuge for Milwaukee Boy's Club.

8/19-22 Samson and Arrowsmith attended law enforcement workshop at Madison, Wisconsin

8/26 Brown attended Juneau County Technical Action Panel at Mauston, Wis.

8/27 Brown and Lennartson inspected 240 acre scientific area with Clifford Germain and Grant Cottam of Wisconsin State Board for the Preservation of Scientific Areas to determine future management of this area of the refuge.

9/5 Brown met with Gordon Lampheir of State Forest Protection Division to discuss Cooperative Fire Fighting Agreement and completion of equipment forms for National Rural Fire Defense Committee.

9/6-8 Lennartson, Samson and Brown gave tours to bowhunters attending the annual bowshoot near refuge headquarters.

9/16 Brown met with Erick Kendall of Midland Cooperatives, Minneapolis, about feature article on Necedah NWR for their magazine.

9/17 Brown gave slide talk to 50 men at Stratford Catholic Church.

9/26 Brown met with group of students from Stevens Point State University and gave demonstration on aging and sexing waterfowl. Samson and Brown took group on tour of refuge

10/8 Brown took Erick Kendall on tour of refuge for material for his article to appear in their bi-weekly magazine.

10/16 Brown demonstrated cannon net trapping operations to Lyle Miller, Region III, Safety Officer

10/20 Brown gave tour of refuge to 15 students from U. of Minn.

10/22 Brown gave tour of refuge to Frank King, Ass't. Supervisor of Game Management, Wis. Dept. of Natural Resources and Ben Hubbard, District Game Manager.

11/1-2 Samson and Brown to Horicon NWR to help color-mark geese

11/4 Brown toured refuge with Dr. Burger from McGraw Wildlife Foundation.

11/5 Samson gave slide talk to 30 members of New Lisbon Lions Club.

11/15 Refuge was host for defensive driving course given by Lyle Miller to personnel from Necedah, Horicon, Mark Twain and 3 USGMA's in Wisconsin.

D. Hunting

Deer

Three hunting seasons for deer were again held on the refuge this year. These coincided with the regular Wisconsin deer hunting seasons and included an early bow season 9/21 - 11/17, gun season 11/23 - 12/1, and a late bow season 12/7 - 12/31. Bow seasons were for either sex deer while the gun season was for bucks only with a limited number of either sex permits issued. A total of 14,003 hunters participated in these refuge hunts and harvested 419 deer. A breakdown of the harvest is 36 during early bow season, 223 during gun season and 160 during late bow season. The number of hunters is based on car counts and deer harvest estimates are based on deer registration figures. The bow season harvest figures are not to difficult to get because almost all deer are registered at the Necedah Ranger Station. This is not true for the gun season so this harvest figure of 223 is 1/3 of the kill that occurred in the Juneau County portion of Unit 56 (the refuge area open to gun hunting is 1/3 of the Juneau County portion of Unit 56). It is felt this is the most accurate harvest figure we can obtain since it would be very difficult to get an actual count with the many township roads leading into and out of the refuge.

Turkeys

For the third consecutive year a spring turkey hunt was held on the refuge and the adjoining Wisconsin Conservation Department managed land. Hunters were selected through a drawing conducted by the State. A staggering 10,000 people applied for the hunt with only 1340 permits being issued. Based on car counts we estimated that 960 hunters used the refuge during the season which ran from April 27 thru May 12. Once again, Wisconsin turkeys proved they were smarter than most Wisconsin turkey hunters as only 11 were bagged on the refuge.

Waterfowl

The waterfowl hunting season for this part of Wisconsin ran from October 5 through December 13 for geese and from October 12 through November 10 for ducks. Bag limit for ducks was 3 per day with some species restrictions. Limit for Canada geese was 1 per day and 4 per season. This was the second year a goose tagging system was in effect in Wisconsin and hunters could apply for either 1 tag in the Horicon zone or 4 tags in the rest of the state. The entire state was allowed a quota of 20,000 Canada geese.

The Necedah Refuge itself is not open to waterfowl hunting as the State manages most of the adjoining 60,000 acre Meadow Valley Wildlife Management Area as a public hunting ground. Their estimates are that 9,900 goose hunters used the Meadow Valley Area with most of this use occurring on the firing line just south of

refuge headquarters. We have not received goose harvest data based on tag returns for the area around Necedah Refuge yet, but it will probably be somewhat less than the 1,071 tag returns last year. Although the goose population of the refuge was higher this year they did not seem to develop large daily feeding flights out the south end of the refuge. We will have to wait for the complete tag return data before we can be sure of the kill however.

The refuge staff again helped State personnel on enforcement of waterfowl regulations around the refuge. It did not seem that hunters objected to the tagging system as much this year and only a few violations for untagged geese were recorded.

Duck hunting pressure was not heavy in the area around the refuge. In addition to the 60,000 acre Meadow Valley Area there are many miles of drainage ditches, cranberry marshes, the Yellow, Lemonweir and the Wisconsin Rivers with large flowages that provide duck hunting opportunity. Drainage ditches and some of the cranberry flowages were not to productive this year but some good success was had on portions of the Yellow and Lemonweir Rivers and the north end of Petenwell flowage on the Wisconsin River. Typical Indian summer, or bluebird days as the duck hunters call them, prevailed during much of the duck hunting season and didn't add to duck hunting success.

E. Violations

A decision handed down by U. S. District Judge James Doyle of Madison, Wisconsin forbids handling violation cases by mail. As a result, two pending violations from 1967 were dismissed on June 3, 1968 because they were handled through the mail.

Excellent cooperation was received from U. S. Game Management Agents and local State wardens for hunting seasons on the refuge. All violations were handled in State court. Several litter violations brought fines of $25., closed hunting area violations $25., and hunting waterfowl on the refuge $50. Refuge personnel turned over eight cases to local State wardens for handling.

F. Safety

Safety meetings were held on the following subjects:

Fire Safety
Woods Safety
Controlled Burning
Accident Reporting
Housekeeping
Chain saw movie
Gun safety
Defensive driving
Review of safety program

In November, Lyle Miller, Regional Safety Officer conducted a very good defensive driving course at Necedah. This was attended by personnel from the Necedah, Horicon and Mark Twain Refuges and U. S. Game Agents stationed in Wisconsin.

One lost time accident occurred when WAE laborer Edward Swanson cut his knee with a chain saw. Mr. Swanson was hospitalized for 10 days and off work 39 days. Fortunately no permanent disability resulted.

One motor vehicle accident occurred when a deer ran into the side of a pickup truck being driven by Biological Technician Wm. Renaker. This resulted in a repair bill of $87.75 to fix the left door and left front fender.

As of December 31 our safety record was 241 days with no lost time accidents.

Measures taken to prevent hazardous conditions at the refuge this year included:

Installing overhead roll bars on Case tractor

Seat belts installed on all tractors

Approximately 30 man-days spent cleaning up storage buildings and the refuge boneyard. In conjunction with this housekeeping, 19 items of unneeded major property were disposed of and over 3 tons of junk and scrap iron sold.

VII. OTHER ITEMS

A. Items of Interest

Howard Lipke, Assistant Manager at Necedah since 1965 received a promotion and transferred to the Agassiz Refuge on January 4, 1968. We all miss Howard's pleasant personality and hard working ways and are sure Necedah's loss was Agassiz's gain.

Fred Samson entered on duty at Necedah as Wildlife Biologist (Management) on April 17, 1968. Fred recently received his masters degree from the University of Indiana. We are happy to have Fred and his wife Sue join us at Necedah.

SIGNATURE PAGE

Submitted by:

David J. Brown
(Signature)

David J. Brown

Refuge Manager
Title

Date: February 6, 1969

Approved, Regional Office:

Date: FEB 17 1969

James B. Monnie
(Signature)

ASST

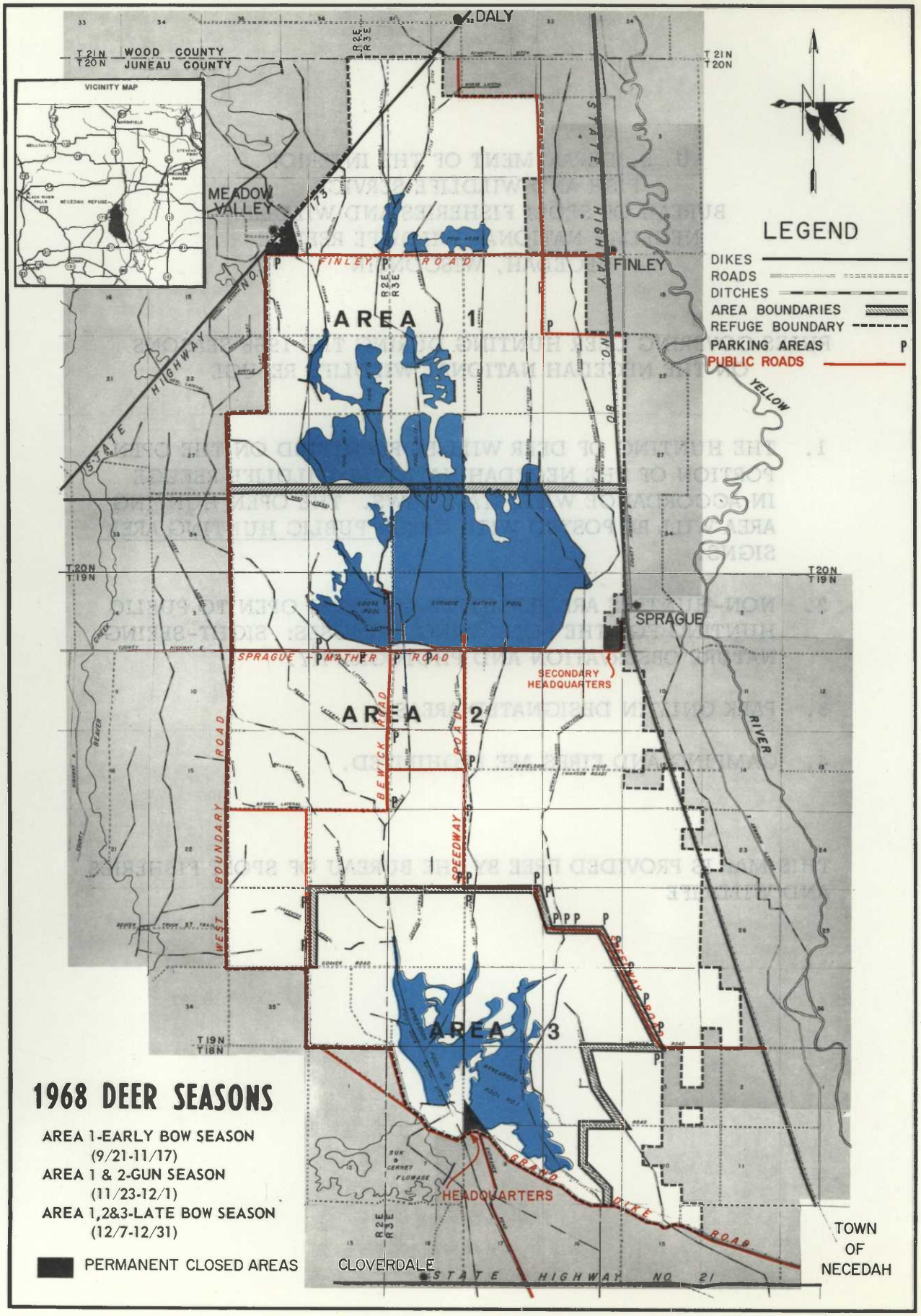
Regional Refuge Supervisor

NECEDAH NATIONAL WILDLIFE REFUGE

JUNEAU COUNTY, WISCONSIN

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



1968 DEER SEASONS

AREA 1-EARLY BOW SEASON
(9/21-11/17)

AREA 1 & 2-GUN SEASON
(11/23-12/1)

AREA 1,2&3-LATE BOW SEASON
(12/7-12/31)

PERMANENT CLOSED AREAS

COMPILED IN THE BRANCH OF ENGINEERING

MINNEAPOLIS, MINNESOTA

JANUARY, 1960

FOURTH PRINCIPAL MEridian

Scale

TOWNSHIP DIAGRAM

MEAN DECLINATION 1960

3R WIS. 274 409

U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
NECEDAH NATIONAL WILDLIFE REFUGE
NECEDAH, WISCONSIN

RULES COVERING DEER HUNTING DURING THE 1968 SEASONS ON THE NECEDAH NATIONAL WILDLIFE REFUGE

1. THE HUNTING OF DEER WILL BE PERMITTED ON THE OPEN PORTION OF THE NECEDAH NATIONAL WILDLIFE REFUGE IN ACCORDANCE WITH STATE LAWS. THE OPEN HUNTING AREA WILL BE POSTED WITH GREEN PUBLIC HUNTING AREA SIGNS.

2. NON-HUNTERS ARE PERMITTED ON AREAS OPEN TO PUBLIC HUNTING FOR THE FOLLOWING PURPOSES: SIGHT-SEEING, NATURE OBSERVATION AND PHOTOGRAPHY.

3. PARK ONLY IN DESIGNATED AREAS.

4. CAMPING AND FIRES ARE PROHIBITED.

THIS MAP IS PROVIDED FREE BY THE BUREAU OF SPORT FISHERIES AND WILDLIFE

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Necedah MONTHS OF January 1 TO April 30, 19 68

(1) Species	(2) Weeks of reporting period									
	1/1-6 1	1/7-13 2	1/14-20 3	1/21-27 4	1/28-2/3 5	2/4-10 6	2/11-17 7	2/18-24 8	2/25-3/2 9	3/3-8 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada										
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:										

Int. Dup. Sec., Wash., D.C. 37944

3-1750a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Necedah MONTHS OF January 1 TO April 30, 1968

(1) Species	(2) Weeks of reporting period: 3/10-16 (11)	3/17-23 (12)	3/24-30 (13)	4/6 (14)	4/13 (15)	4/20 (16)	4/27 (17)	4/28-30 (18)	(3) Estimated waterfowl days use	(4) Production: Broods seen	Broods: Estimated total
Swans:											
Whistling				15		1			112		
Trumpeter											
Geese:											
Canada	125	610	1,895	2535	1865	980	1340	180	67,250		
Cackling		50	70	80					1,400		
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	25	645	925	820	1230	890	840	870	40,235		
Black		95		110	130	15	10	30	2,610		
Gadwall											
Baldpate					135	110	25	15	1,935		
Pintail		165	15	45	10	15			1,750		
Green-winged teal		25	215	10	205	75	75	100	4,535		
Blue-winged teal			65	15	225	225	185	405	6,920		
Cinnamon teal											
Shoveler				40	75	60	30	20	1,495		
Wood				25	80	40	40	100	1,595		
Redhead			35	20	130	185	45		2,905		
Ring-necked		35	255	135	400	490	110	105	10,280		
Canvasback				40	65	15			840		
Scaup		50	305	525	200	330	550	225	14,575		
Goldeneye	10	225	315	70	30		25		4,725		
Bufflehead				85	25	55	105	10	1,920		
Ruddy		15	10	60	20			15	780		
Other Hooded Merganser											
Other Common Merganser		195	305	140			10		4,480		
Coots:											
				15	1820	1340	980	355	30,150		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	112	15	
Geese	68,650	2,615	
Ducks	101,590	3,070	
Coots	30,150	1,820	

SUMMARY

Principal feeding areas Rynearson Pools and Sprague-Mather Pool.

Principal nesting areas

Reported by David J. Brown

David J. Brown, Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Needah MONTHS OF May 1 TO August 31, 19 68

(1) Species	(2) Weeks of reporting period: 5/1-4 (1)	5/5-11 (2)	5/12-18 (3)	5/19-25 (4)	5/26-6/1 (5)	6/2-8 (6)	6/9-15 (7)	6/16-22 (8)	6/23-29 (9)	6/30-7/6 (10)
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	90	80	60	60	60	60	80	80	80	80
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	810	690	590	690	690	690	990	990	1,090	1,115
Black	30	70	25	25	25	25	25	25	25	25
Gadwall										
Baldpate	15	20								
Pintail										
Green-winged teal	75	60	80	80	80	80	80	80	80	100
Blue-winged teal	405	390	390	390	390	390	390	390	390	440
Cinnamon teal										
Shoveler	20	25	20	20	20	20	20	20	20	20
Wood	100	80	80	80	80	80	110	110	110	150
Redhead										
Ring-necked	105	50	20	20	20	20	20	20	20	20
Canvasback										
Scaup	285	160	60	80	80	80	80	80	80	80
Goldeneye		10								
Bufflehead	10									
Ruddy										
Other Hooded Merganser	15	10	10	10	10	10	10	10	10	10
Coot:	355	130	90	90	90	90	90	90	90	90

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3-1750a
Cont NR-1
(Rev March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Necedah MONTHS OF May 1 TO August 31, 1968

(1) Species	(2) Weeks of reporting period 7/7-13 (11)	7/14-20 (12)	7/21-27 (13)	7/28-8/3 (14)	8/4-10 (15)	8/11-17 (16)	8/18-24 (17)	8/25-31 (18)	(3) Estimated waterfowl days use	(4) Production Broods seen	(4) Production Estimated total
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	80	80	150	240	260	280	280	280	16,390	3	20
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	1,315	2,115*	2,275	2,140	2,010	1,760	1,760	1,760	161,930	15	450
Black	25	25	40	40	95	145	145	145	6,630		
Gadwall					15	15	15	15	620		
Baldpate											
Pintail											
Green-winged teal	100	100	100	120	120	120	120	120	11,660		20
Blue-winged teal	490	490	490	490	535	605	700	740	58,380	7	125
Cinnamon teal											
Shoveler	20	20	20	20	20	20	20	20	2,870		
Wood	150	150	250	310	415	595	600	650	20,400	2	125
Redhead											
Ring-necked	20	20	20	20	20	20	20	20	2,570		
Canvasback											
Scaup	80	80	80	80	80	80	80	80	11,080		
Goldeneye									70		
Bufflehead									40		
Ruddy											
Other Hooded Merganser	10	10	10	10	10	10	10	10	1,250		
Coots:	90	90	110	110	110	110	110	110	12,620		20

*Includes Frost Mallard release

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	0	0	0
Geese	16,390	280	20
Ducks	285,980	3,560	720
Coots	12,620	110	20

SUMMARY

Principal feeding areas Kynearson Pools 1 and 2, Sprague Pool, Williams and Canfield Agricultural Units.

Principal nesting areas Marsh areas above Kynearson Pools 1 & 2, Sprague Pool and low wet areas near ditches.

Reported by Fred B. Samson

Fred B. Samson, Ass't. Refuge Manager

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1750
Form NP-1
(Rev. March 1953)

WATERFOWL

REFUGE Necedah MONTHS OF Sept. 1 TO Dec. 31, 19 68

(1) Species	Weeks of (2) reporting period									
	1 9/1-7	2 9/8-14	3 9/15-21	4 9/22-28	5 9/29-10/5	6 10/6-12	7 10/13-19	8 10/20-26	9 10/27-11/2	10 11/3-9
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada		410	450	2,850	6,900	12,530	7,125	5,600	5,890	5,050
Cackling							10			
Brant										
White-fronted										
Snow					20	80			40	
Blue							100		10	
Other										
Ducks:										
Mallard	1,590	2,020	2,210	2,830	3,320	10,970	5,470	4,590	3,145	1,450
Black	160	200	250	270	320	770	380	270	190	150
Gadwall				40	40	40		50	40	
Baldpate	575	750	800	1,100	1,170	5,270	2,700	4,150	3,400	1,725
Pintail				100	70	650	200	325	170	190
Green-winged teal	280	120	100	230	320	1,470	860	340	170	220
Blue-winged teal	1,080	830	725	495	465	660	340	140	240	140
Cinnamon teal										
Shoveler	10					40	100	80		
Wood	570	570	430	100	50	30	40			
Redhead						220	150	100	100	
Ring-necked	20	60	60	20	80	450	490	4,300	2,500	2,160
Canvasback						80	50	10		
Scaup	80					650	300	300		
Goldeneye						400	300	200	200	150
Bufflehead										
Ruddy										
Other Common Merganser	10				30					
Hooded Merganser		20								
Coot:	110	110	150	350	550	1,100	4,300	4,780	3,140	2,100

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3-1750a
Cont NR-1
(Rev March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Necedah MONTHS OF Sept. 1 TO Dec. 31, 19 68

(1) wk ending / Species	(2) Weeks of reporting period: 11/16 (11)	11/23 (12)	11/30 (13)	12/7 (14)	12/14 (15)	12/21 (16)	12/28 (17)	29-31 (18)	(3) Estimated waterfowl days use	(4) Production: Broods seen	(4) Production: Estimated total
Swans:											
Whistling	400	15	25	15					3,185		
Trumpeter											
Geese:											
Canada	4,050	4,490	120	35	10	10	10	10	388,740		
Cackling									70		
Brant											
White-fronted											
Snow									980		
Blue									770		
Other											
Ducks:											
Mallard	780	790	100	25	10	10	10	10	275,270		
Black	150	40	10						22,120		
Gadwall									1,470		
Baldpate	140	70							152,950		
Pintail	80								12,495		
Green-winged teal	100	50							29,820		
Blue-winged teal	100	50							36,855		
Cinnamon teal											
Shoveler									1,610		
Wood									12,530		
Redhead									3,990		
Ring-necked	170	50							72,520		
Canvasback									980		
Scaup									9,310		
Goldeneye									8,750		
Bufflehead		40							280		
Ruddy											
Other Common merganser									280		
Coots: Hooded merganser									140		
Coots	60								117,250		

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	3,185	400	
Geese	390,560	12,610	
Ducks	641,370	22,730	
Coots	117,250	4,780	

SUMMARY

Principal feeding areas Rynearson Pool 2, Canfield agricultural Units, Fields No. 1 and 6 (Iron-top) and Goose Pool.

Principal nesting areas

Reported by Fred B. Samson

Fred B. Samson, Refuge Biologist

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

(1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.

(2) Weeks of Reporting Period: Estimated average refuge populations.

(3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.

(4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.

(5) Total Days Use: A summary of data recorded under (3).

(6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.

(7) Total Production: A summary of data recorded under (4).

Interior Duplicating Section, Washington, D. C.
1953

3-1751
Form NR-1A
(Nov. 1945,

MIGRATORY BIRDS
(other than waterfowl)

Refuge Necedah Months of January to April 30 195x 68

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Pied-billed Grebe	3	4/5	50-75	Late April	Still	present				
Great Blue Heron	3	4/5	30-50	"	"					
Sandhill Crane	6	4/12	30-50	"	"					
Green Heron	1	4/19	few	"	"					
Common Loon	1	4/19	3-5	"	"					
Virginia Rail	1	4/25	few	"	"					
Sora Rail	1	4/25	few	"	"					
II. Shorebirds, Gulls and Terns:										
Common Snipe	2	4/12	Many	mid-April	Still	present				
Killdeer	2	4/19	"	"	"					
Woodcock	1	4/22	"	late-April	"					
Greater Yellowlegs	5	4/22	30-40	"	"					
Lesser Yellowlegs	3	4/26	15-30	"	"					
Semi-palmated Sandpiper	2	4/26	15-30	"	"					
Least Sandpiper	1	4/29	few	"	"					

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	2	3/25	Many	late-april	100-150	present		
White-winged dove								
IV. Predaceous Birds:								
Golden eagle	Occasional visitor							Barred Owl - Year-around resident
Duck hawk								Screech " - Common
Horned owl	Common resident							Long-earned Owl - Occasional
Magpie								Saw-whet Owl - Occasional
Raven								
Crow								
Bald Eagle	Occasional visitor							
Osprey	1	4/25						
Red-tailed Hawk	2	4/15	Common	April	Still present			
Rough-legged Hawk	2	4/15	"		"			
Marsh Hawk	3	4/15	"		"			
Sparrow Hawk	1	4/19	Several	"	"			
Cooper's Hawk	1	4/19	"	"	"			
Goshawk	1	4/19	Common	"	"			
Red-shouldered Hawk	1	4/19	Common	"	"			

Reported by Fred B. Samson

Fred B. Samson, Ass't. Refuge Mgr.

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

59317

3-1751
Form NR-1A
(Nov. 1945,

MIGRATORY BIRDS
(other than waterfowl)

Refuge Necedah Months of May 1 to August 31 195 68

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Common loon	summer resident		10	late Aug	Still present					
Pied-billed grebe	"	"	30	" "	"	"				
Great blue heron	"	"	110	July	"	"	1	26	50	110
Green heron	"	"	50	"	"	"				
American bittern	"	"	few	late Aug						
American egret	1	May 15	1	May 15	1	May 15				
Virginia Rail	summer resident		few	Aug 15	few still present					
Sora rail	"	"	"	"	"					
Sandhill crane	"	"	130	late Aug	All still present				15	130
II. Shorebirds, Gulls and Terns:										
Killdeer	summer resident		common	early Aug	few still present					
Woodcock	"	"	"	"	"	"				
Common snipe	"	"	"	"	"	"				
Upland plover	"	"	"	"	"	"				
Spotted sandpiper	"	"	"	"	"	"				
Solitary sandpiper	"	"	few	"	"	"				
Greater yellow legs	"	"	80-100	early June	"	"				
Lesser yellow legs	"	"	100-120	" "	"	"				
White-rumped sandpiper	3	5/9	20-30	" "	3-5	June				
Least sandpiper	summer resident		few	" "	few still present					
Herring gull	5	5/7	10-15	early Aug	5-10	late Aug				
Black tern	summer resident		common	" "	few still present					
Common tern	"	"	few	" "	"	"				

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	summer	resident	300-400	August	still present			
White-winged dove								
IV. Predaceous Birds:								
Golden eagle								
Duck hawk								
Horned owl	summer	resident	common		still present			
Magpie								
Raven								
Crow	summer	resident	common		still present			
Bald eagle	1	7/9	occasional visitor					
Red-tailed hawk	summer	resident	20-30	August	still present			
Marsh hawk	"	"	10-15	"	"	"		
Sparrow hawk	"	"	30-40	"	"	"		
Cooper's hawk	"	"	10-15	"	"	"		
Broad-winged hawk	1	May	occasional		"	"		
Barred Owl	summer	resident	common		"	"		
Short-eared owl	1	June	occasional		"	"		
Saw-whet owl	summer	resident	occasional		"	"		

Reported by Fred B. Samson

Fred B. Samson, Ass't. Refuge Manager

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiformes)
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

INT.-DUP. SEC., WASH., D.C.

59317

3-1751
Form NR-1A
(Nov. 1945,

MIGRATORY BIRDS
(other than waterfowl)

Refuge Necedah Months of Sept. 1 to Dec. 31 195 68

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. Water and Marsh Birds:										
Pie-billed Grebe	Summer	Resident	70-80	Sept.	Late	Oct.				
Great Blue Heron	"	"	70	Sept.	Mid	Oct.				
Green Heron	"	"	Fairly common thru September							
American Bittern	"	"	5 - 10	Sept.	5 - 10	Sept.				
Common Loon	"	"	2 - 5	Sept.	2 - 5	Sept.				
Virginia Rail	"	"	Common in Sept.		Mid	Oct.				
Sora Rail	"	"	Common in Sept.		Mid	Oct.				
Sandhill Crane	"	"	350	10/22	Mid	Nov.				
II. Shorebirds, Gulls and Terns:										
Killdeer	Summer	Resident	Common thru Sept.							
Woodcock	"	"	Common to Mid October							
Common Snipe	"	"	Common to Mid October							
Greater Yellow Legs	"	"	Few thru September							
Lesser Yellow Legs	"	"	Few thru September							
Pectoral Sandpiper			Few thru September							
Baird's Sandpiper			Single observation on 9/23							
Least Sandpiper			Few thru September							
Herring Gull			14	9/23	Early	October				
Ring-billed Gull			4	9/23	Early	October				
Upland Plover	Summer	Resident	Few thru September							

(over)

(1)	(2)		(3)		(4)		(5)	(6)
III. Doves and Pigeons:								
Mourning dove	Summer Resident		400-500	Late Aug.				
White-winged dove								
IV. Predaceous Birds:								
Golden eagle	Occasional visitor		3	10/18	Late	November	Great-horned Owl - Year-round res.	
Duck hawk							Saw-whet Owl "	
Horned owl	Year-round resident		common				Screech Owl "	
Magpie							Barred Owl "	
Raven							Short-eared Owl Single Observatio	
Crow	Year-round resident		common		Mid	December		
Bald Eagle	10/8	2	8-10	Oct-Nov	Mid	December		
Goshawk	Early October		4-6	Early Oct	Late	October		
Red-tailed Hawk	Summer Resident		20-25	October	Still	present		
Rough-legged Hawk	Early October		6-8	October	Late	November		
Broad-winged Hawk	Single Observation		10/10					
Marsh Hawk	Summer Resident		10-15	October	Mid	December		
Osprey	Single Observation		11/12					
Sparrow Hawk	Summer Resident		25-30	October	Late	November		
~~Cooper's Hawk~~	"	"	5-10	October	"			

Reported by Fred B. Samson

INSTRUCTIONS

(1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U order. Avoid general terms as "seagull", "tern",. etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiiforme
II. Shorebirds, Gulls and Terns (Charadriiformes)
III. Doves and Pigeons (Columbiformes)
IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)

(2) First Seen: The first refuge record for the species for the season concerned.

(3) Peak Numbers: The greatest number of the species present in a limited interval of time.

(4) Last Seen: The last refuge record for the species during the season concerned.

(5) Production: Estimated number of young produced based on observations and actual counts.

(6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Necedah — For 12-month period ending August 31, 19 68

Reported by Fred B. Samson — Title Ass't. Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type	(2) Habitat Acreage		(3) Use-days	(4) Breeding Population	(5) Production
UNIT 1	Crops	130	Ducks	381,220	200	210
Kynearson 1	Upland	6,805	Geese	84,100	3	10
and SE 1/4 of	Marsh	1,500	Swans	0	0	0
refuge	Water	1,000	Coots	131,940	5	20
	Total	11,435	Total	597,260	208	240
UNIT 2	Crops	292	Ducks	188,465	120	170
Kynearson 2	Upland	7,408	Geese	57,910	0	0
and SW 1/4 of	Marsh	1,000	Swans	0	0	0
refuge	Water	700	Coots	43,485	0	0
	Total	9,400	Total	289,860	120	170
UNIT 3	Crops	0	Ducks	467,540	120	170
Sprague-Mather	Upland	4,540	Geese	181,524	4	0
Pool, east-	Marsh	2,000	Swans	0	0	0
west boundary	Water	3,000	Coots	77,390	5	0
	Total	9,540	Total	726,454	129	170
UNIT 4	Crops	0	Ducks	137,655	120	170
Pools 9, 13, 18,	Upland	7,052	Geese	18,500	3	10
19, 27, 28 and	Marsh	1,300	Swans	0	0	0
N 1/4 of refuge	Water	800	Coots	5,755	0	0
	Total	9,152	Total	161,910	123	180
TOTALS:	Crops	422	Ducks	1,174,880	560	720
	Upland	27,885	Geese	342,034	10	20
	Marsh	5,800	Swans	0	0	0
	Water	5,500	Coots	258,570	10	20
	Total	39,607	Total	1,775,484	580	760
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

(1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.

(2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.

(3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form MR-1.

(4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.

(5) **Production:** Estimated total number of young raised to flight age.

Interior Duplicating Section, Washington, D. C. 27580

3-1752
Form NR
(April 1946)

UPLAND GAME BIRDS

Refuge Maccodah Months of January 1 to April 30, 1968

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	30,000									Population level stable from last year. Winter conditions favorable for good carryover and favorable spring nesting period.
Sharp-tailed Grouse	10,000								20 - 30	Observations on lone dancing ground indicate 5 dancing males plus an additional probable male. Good winter carryover.
Ring-necked Pheasant	1,500								1 - 5	No observations made this period.
Wild Turkey	30,000					11			300 - 400	Birds well dispersed and in good shape. Over-wintering conditions were favorable.
Bobwhite Quail	5,000								5 - 15	No observations made this period.
Woodcock	12,000									Observations on refuge indicate a slight increase in woodcock numbers
Snipe	5,000									Several scattered sightings on refuge.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, phesants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

3-1752
Form NR
(April 1946)

UPLAND GAME BIRDS

Refuge Necedah Months of May 1 to August 31, 1968

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed grouse	30,000									Population on increase, many broods observed.
Sharp-tailed grouse	10,000								30 - 50	A single brood observed this period. Population probably declining.
Bobwhite Quail	5,000								10 - 25	A single sound observation made.
Wild Turkey	30,000								300 - 350	Population slightly lower due to unfavorable nesting period.
Woodcock	12,000								common	Production assumed to be near normal although no broods observed.
Snipe	5,000								common	Numerous in late August, particularly on flooded Williams field and Sprague Pool flats.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, phesants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

3-1752
Form NR
(April 1946)

UPLAND GAME BIRDS

Refuge Necedah Months of September to December, 19 68

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re-stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ruffed Grouse	23,000								1,600	Group sightings along road indicate good brood production and survival. Adult observations common.
Sharp-tailed Grouse	10,000								30 - 50	3 adults observed on or near Tometczyk. Probable observation near Canfield agricultural units. Population stable or slightly decreased.
Ringneck Pheasant	1,500								1 - 5	1 cock observed. Population remains limited.
Bobwhite Quail	5,000								10 - 20	1 dead and 1 sound observation. Population limited.
Wild Turkey	30,000								250 - 300	Few broods observed. December concentrations have not yet appeared. Population trend downward.
Woodcock	12,000								Common	Scattered observations of adults. No broods observed.
Snipe	5,000								Common	Numerous sightings on flooded portion of Williams field and Sprague Pool flats.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS*

(1) SPECIES: Use correct common name.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.

(4) SEX RATIO: This column applies primarily to wild turkey, phesants, etc. Include data on other species if available.

(5) REMOVALS: Indicate total number in each category removed during the report period.

(6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.

(7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

*Only columns applicable to the period covered should be used.

Form NR-3

BIG GAME

Refuge NECEDAH Year 19~~4~~ 68

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population as of Dec. 31	(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re-stocking	Sold	For Research	Predation	Disease	Winter Losses	Number	Source		Percentage
White-tailed Deer	35,000	450	419									950	1 male : 1.2 Females
	36 early bow season 223 gun season 160 late bow season 419												

1614

INSTRUCTIONS

Form NR-3 - BIG GAME

(1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.

(2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.) exclusive of fenced herds. Detailed data may be omitted for species occuring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) YOUNG PRODUCED: Estimated total number of young produced on refuge.

(4) REMOVALS: Indicate total number in each category removed during the year.

(5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.

(6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.

(7) TOTAL REFUGE POPULATION: Give the estimated population of <u>each species</u> on the refuge as of December 31.

(8) SEX RATION: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge Necedah Year ending April 30, 1968

(1) Species	(2) Density		(3) Removals					(4) Disposition of Furs						(5)
								Share Trapping						
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re-stocking	For Re-search	Permit Number	Trappers Share	Refuge share	Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	Total Popula-tion
Muskrat				212				T-9965	96	96	96			400 - 600
								T-9966	10	10	10			
Mink				14				T-9965	3	3	3			100 - 150
								T-9966	4	4	4			
Raccoon				51	9			T-9965	31	0	0		9	500 - 1000
								T-9966	20	0	0			
Beaver				58				T-9967	21	0				100
								T-9968	23	0				
								T-9969	14					
Otter				0										40 - 60

* List removals by Predator Animal Hunter

REMARKS: Average prices rec'd. for pelts:
Bagnowski averaged $19.76 ea for 21 beaver
Bagnowski averaged .70 for muskrats; Gov't. averaged .72¢, furs sold locally
Gov't. averaged $5.00 ea for 7 mink.
Bagnowski rec'd. $1.50 for each raccoon

Reported by _____

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

(1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)

(2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.

(3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headingslisted.

(4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.

(5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.

REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1758
Form NR-
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Necedah County Juneau State Wisconsin

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Waterfowl Browsing Crops Type and Kind	Total Acreage
			Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
Field Corn			5	197 bu.	42	4365 bu.	47	Rye	53
Buckwheat					51	1275 bu.	51	Alfalfa	52
								Grass mixtures, Bluegrass, red-top, timothy, legumes	121
								Fallow Ag. Land	0

No. of Permittees: Agricultural Operations 0 Haying Operations 2 Grazing Operations 1

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue
Alfalfa	19.25	52	$48.12
Grass mixtures	21.60	20	54.00
	40.85	72	102.12
Hay - Wild	0		

GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
1. Cattle	14	63	$9.00	145
2. Other Apiary	20 hives	@10¢	2.00	
1. Total Refuge Acreage Under Cultivation				324
2. Acreage Cultivated as Service Operation				324

DIRECTIONS FOR PREPARING FORM NR-8
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

INT.-DUP. SEC., WASH., D.C. 91767

3-1570
NR-88
(4/54)

REFUGE GRAIN REPORT

Refuge Necedah — Months of January 1 through December 31, 1968

(1) Variety*	(2) On Hand Beginning of Period	(3) Received During Period	(4) Total	(5) Grain Disposed of				(6) On Hand End of Period	(7) Proposed or Suitable Use*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Corn (shelled)	150	425	575			375	375	200		200	
Corn (seed)	0	9	9		8		8	1	1		
Buckwheat	270	0	270	20	50	65	135	135	105	30	
Wheat, spring	30	0	30		10		10	20		20	
Rye	0	40	40		40		40	0			
Millet, Japanese	0	20	20		16		16	4	4		
Millet, Proso	10	20	30		22		22	8	8		
Sorghum, Hybrid NK115	0	3	3					3	3		
Clover, Alsike	1	0	1		1		1	0			
Oats	15	0	15			5	5	10	10		
Alfalfa, Vernal	2	0	2		1		1	1	1		
Bluegrass	2	0	2		1		1	1	1		
Timothy	10	0	10		7		7	3	3		

(8) Indicate shipping or collection points New Lisbon

(9) Grain is stored at headquarters and secondary granaries

(10) Remarks

*See instructions on back.

NR-8a

REFUGE GRAIN REPORT

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

(1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR–9.

(3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.

(4) A total of columns 2 and 3.

(6) Column 4 less column 5.

(7) This is a proposed break-down by varieties of grain listed in column 6. .Indicate if grain is suitable for seeding new crops.

(8) Nearest railroad station for shipping and receiving.

(9) Where stored on refuge: "Headquarters granary," etc.

(10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

INT.-DUP. SEC., WASH., D.C. 17065

3-1761
Form NR-
(2/46)

TIMBER REMOVAL

Refuge Necedah Year 1968

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc. (CORDS)	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
PERMITS COMPLETED DURING 1968:								
Becker Forest Prod.	68-4	S.4 18N3E S.5 18N3E	110	671.00 329.00 57.00	6.30 1.50 1.00	Paid last year	Cut all merchantable trees	Jack Pine Oak Aspen
Becker Forest Prod.	68-8	S.36 19N2E	4	40.00	6.30	252.00	Timber trespass	Jack Pine
Oscar Baumgart	68-11	S.30 20N3E	18	65.00	.50	32.50	Cut oak only	Oak
Leslie Nowicki	69-6	S.28 19N3E	17	139.80	6.30	880.74	Cut all merchantable	Jack Pine
Oscar Baumgart	69-7	S.30 20N3E	18	50.00	.50	25.00	Cut oak only	Oak
PERMITS INCOMPLETE AS OF DECEMBER 31, 1968:								
Becker Forest Prod.	67-9	S.32 20N3E	40	256.12 171.26	5.00 1.00	1,280.60 171.26	Cut all merchantable timber	Jack Pine Oak
Becker Forest Prod.	68-6	S.36 19N2E S.31 19N3E	150	1,350.00 200.00 500.00	6.30 1.00 1.00	2,413.50	Cut all merchantable timber	Jack Pine Oak Aspen
Becker Forest Prod.	68-7	S.32 19N3E S.33 19N3E	220	800.00 300.00 250.00	6.30 1.50 1.00	-	Cut all merchantable timber	Jack Pine Oak Aspen

(continued on next page)

Total acreage cut over..... Total income.....

No. of units removed B. F..... Method of slash disposal.....
Cords.....
Ties.....
.....

INT.-DUP. SEC., WASH., D.C. 36103

3-1761
Form NR
(2/46)

TIMBER REMOVAL

Refuge Necedah Year 1968

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc. (CORDS)	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
PERMITS INCOMPLETE AS OF DECEMBER 31, 1968:								
Becker Forest Prod.	68-9	S.33 19N3E	360	1,000.00 500.00 50.00	6.00 1.00 1.00	8,650.00	Cut all merchantable timber	Jack Pine Oak Aspen
Becker Forest Prod.	68-10	S.25 20N2E	0	0	3.00 .50 .50	445.00	Cut all merchantable timber	Jack Pine Oak Aspen
Becker Forest Prod.	69-4	S.28 19N3E S.19 19N3E	120	500.00	6.30	3,150.00	Cut all merchantable jack pine	Jack Pine
Robert Slovensky	69-5	S.17 19N3E	13		6.35	.00	Cut all merchantable	Jack Pine
Leslie Nowicki	69-8	S.20 19N3E	No cutting yet		6.30	.00	Cut all merchantable trees not marked	Jack Pine
Oscar Baumgart	69-9	S.20 19N3E	"	" "	6.30	.00	"	Jack Pine
Robert Slovensky	69-10	S.20 19N3E	"	" "	6.30	.00	"	Jack Pine
Becker Forest Prod.	69-11	S.18 19N3E S. 7 19N3E	"	" "	6.30	1,394.00	Cut all merchantable jack pine	Jack Pine

Total acreage cut over 1,070 Total income $18,694.60

No. of units removed B. F.
Cords 7,229.18
Ties

Method of slash disposal lopped 18" - 24" height

INT.-DUP. SEC., WASH., D.C. 36103

3-1979 (NR-12)
(9/63)

Bureau of Sport Fisheries and Wildlife

ANNUAL REPORT OF PESTICIDE APPLICATION

Refuge: Necedah

Proposal Number:

Reporting Year: 1968

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Proposal No. 68-1:								
July	Debarking of Oak (Quercus spp.)	Sec. 25 T20N R2E	220	Atlas D debarking compound with animal repellent 40% sodium arsenite	15 gal.	.3 lbs/acre 1 gal/15 acres	None	Girdle tree and apply w/brush
Proposal No. 68-2:								
7/9-16/68	Willow (Salix spp.)	Southern portions of Pool No. 2 while it was completely drained of water	58	2-4-D	29 gal.	2 lbs acid equivalent per acre	Water 1 : 5	Portable backpack mist blower
Proposal No. 68-3:								
7/1-9/68	Quackgrass (Aropyron repens)	Corn fields on Canfield and Irontop agricultural units.	47	Atrazine	150 lbs	2.8 lbs/acre	Water 32 gal/acre	Hanson boom sprayer

10. Summary of results (continue on reverse side, if necessary)

Proposal No. 68-1: Atlas D, the leaves began to wilt 2 days after application and within a month there was a 100% kill. No ill effects to wildlife was noticed after the treatment. The compound used had an animal repellent. The refuge incurred no cost from this operation.

Proposal No. 68-2: The spraying was done between 8:00 AM and 4:30 PM. Wind calm to 8 mph, temperature range from 55 to 88 degrees F. An apparent kill of 80% was observed. Cost of spraying: labor, $144.00, 2-4-D $86.71, transportation $2.00, mist blower $10.00, total cost $242.71; $4.18 cost per acre. YOC labor used @ $1.60/hr.

Proposal No. 68-3: Atrazine, the spraying adequately controlled the pest weeds, atrazine cost $323.73, labor $91.20; equipment cost $12.00; Total cost $427.63; cost/acre $7.92

35500

Refuge Staff, from left to right, Biologist Fred Samson, Maintenanceman Harold Carter, Refuge Manager David Brown, Forester Jim Lennartson, Clerk Vern Rudolph, Mechanic Robert Arrowsmith. Roll 69-2 E-15

Oak savanna area east of Rynearson Pool No. 1 with all pine and small oaks removed prior to burning. Periodic burning should maintain an oak-savanna type. Roll 68-11 E-13 Samson

Beginning of tower road construction with trees pushed down. Roll 68-4 E-4 Brown

Observation tower road after completion and ready for heavy fall use. Roll 68-15 E-19 Brown

JAN 69

Observation tower overlooking Rynearson Pool No. 1 opened to public this fall. Approximately 5500 people used it during the fall migration. R-16 E-10a Brown

JAN 69

This pair of field glasses was attached to the observation tower and was used by many tower visitors. R-16 E-19a Brown

Eroded stoplog channels of Dam 29. Sprague Pool drained for repairs during January. Roll 68-1 E-8 Brown

Completed repairs to Structure No. 29, with steel channels in place. No further erosion of concrete has occurred with steel channels in place. Roll 68-15 E-9 Samson

Post hole auger used to dig holes for pothole blasting. This saved many hours of digging. Roll 68-13 E-14 Brown

Pothole blasting with ammonium nitrate north of Pool 2. Twelve large potholes were blown. Roll 68-13 E-13 Brown

YOC spraying willow in Pool 2 with mist blower. Approximately 80% of the willow died from the 2-4-D treatment. Roll 68-12 E-12 Brown

Mowing willow in Parker field to keep area open.
Roll 68-13 E-9 Brown

Permittee cutting jack pine in timber sale area.
Roll 68-16 E-12 Lennartson

Refuge forester scaling pulpwood skidded and stacked by permittee. Roll 68-16 E-8 Samson

Above photo - Trapping permittee Matt Jordan working on one of ditches.
Roll 68-16 E-5 Samson

Carter setting live trap for beaver along Canfield Road. Several beaver were caught and transplanted to other areas lacking culverts to be blocked.
Roll 68-6 E-18 Samson

Refuge personnel assisting LaCrosse Fish Control Laboratory in seining bullheads from the refuge for experimental work at the laboratory. Roll 68-3 E-13 Samson

LaCrosse Fish Control Laboratory getting bullhead fingerlings below Dam 29. Roll 68-3 E-16 Samson

JAN 69

Control burn east of Pool No. 1. Area with trees has had all pine and small oak removed. We will burn it periodically to maintain an oak savanna. Roll 68-15 E-12 Brown

JAN 69

Control burn on unit east of Pool No. 1. A good hot burn which killed alot of willow and small aspen. When opened up this area has good possibilities for millet production. Roll 68-15 E-14 Brown

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JAN 69

Installing culvert and riser to extend moist soil food production area north end of Rynearson Pool No. 2.
R-68-14 E-5 Brown

JAN 69

Burning moist soil food unit north end of Pool No. 2 to remove woolgrass and willow. Fire almost out here, after it had burned over this area. R-68-17 E-12a Samson

One of many parking areas on opening day of late bow season. R-68-17 E-4a Brown

Successful bow hunters returning to parking area on opening day of late bow season. R-68-18 E-18 Brown

Driving 3 week old Frost mallards to banding location. The mallards were "conditioned" by being raised away from man. Roll 68-6 E-1 Samson

Banding Frost mallards before transporting them to Necedah or Mead Wildlife Area for release. 2,952 mallards were banded and released.
Roll 68-6 E-7 Samson

Frost mallards being released into Rynearson Pool No. 1.
Roll 68-10 E-1 Samson

State Conservation Wardens on hand for eagle release. Left, Dave Hames, right, Cal Clark. We had kept eagle about six weeks because it couldn't fly. When released it appeared it would make it. Roll 68-17 E-19a Brown

Lateral ditching work to improve drainage in Pool No. 2. This will allow using equipment to disc and seed millet. Roll 68-12 E-14 Brown

Big and Little Bluestem on margin of Pool 2 resulting from several control burns. This was oak woods several years ago with almost no grass. Roll 68-13 E-16 Brown

Refuge Clerk Rudolph looking at excellent crop of millet in Pool 2. Roll 68-13 E-20a Brown

Manager Brown examining corn in lower Canfield. One of best crops in years. Roll 68-13 E-18 Rudolph

Raccoon scaling duck artificial nesting structure. It was found a raccoon could also scale structure when it was in open water. Photo by Wm. Renaker

Raccoon climbing over edge of artificial nesting structure. Predation by raccoon has seriously hurt our waterfowl production. Dummy nest studies averaged 90% destruction. Photo by Wm. Renaker

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At Necedah, Wis.

Thundering flocks of birds find safety in wildlife refuge

"There is nothing more practical in the end than the preservation of beauty, than the preservation of anything that appeals to the higher emotions of man." — Theodore Roosevelt.

By ERICK KENDALL

If you want to go where the wild goose goes, make a trip to the Necedah National Wildlife Refuge in Central Wisconsin.

Watching thousands of Canadian honkers, and even more numerous wild ducks rise from their feeding grounds listening to the thunder of their combined wing beat and wild, loud cacophony of their calls makes a combination of sight and sound that you will not soon forget.

Although waterfowl was our main target as Refuge Manager David Brown and I drove through the 15-mile long refuge there were also bonus offerings: Majestic sandhill cranes standing sentinel duty in a pond. My first sight of a flock of wild turkeys. Smaller birds of many varieties, and the workings of beaver, the world's oldest construction laborer and engineer.

WE COULD HAVE easily imagined that we were back in the America of the Pilgrims, or that of Daniel Boone, except that there are no more passenger pigeons anywhere, not even in Necedah. Refuges came too late to save this American bird, and possibly too late for the whooping crane as well.

And that is the point of this story, and of Necedah itself. Through refuges such as this 40,000-acre plot of open water, marshes and upland the U.S. Department of Interior is striving to prevent the repetition of the passenger pigeon tragedy.

There is a chain of such refuges along the Mississippi flyway, from Canada to Mexico, and similar chains along the Atlantic, Pacific and Central (or Rocky Mountain) flyways. According to Brown, they are not merely resting places for migrating waterfowl, but breeding grounds as well.

The past glory, the precipitate decline and the present efforts to retain and rebuild the flocks of waterfowl that once darkened the sky are integrally tied to the story of the so-called wetlands of the North Central States. When the ice age glaciers retreated northward across the area, millions of depressions were left. They are now lakes, marshes and potholes ideal for waterfowl reproduction.

BUT AFTER THE Civil War much of the wetland country was drained, levelled, filled and put to the plow. This trend gained impetus annually, reaching a crescendo after World War II. Other threats to the potholes and marshes were greater highway construction with its drainage ditches, and well irrigation which levelled the land.

The Fish and Wildlife Service sounded the alarm, and in 1958 Congress responded. It amended the Duck Stamp Act to authorize outright purchase and long-term assessment of the wetlands. And in 1961 Congress authorized immediate funding of $105 million, repayable from the receipts of future sales of Duck Stamps. An accelerated program of wetlands habitat preservation began.

THE RESULT: Today there are 17 wildlife refuges like Necedah in Minnesota, Wisconsin and North Dakota alone, and many more in other states. They are primarily geared to the preservation of waterfowl, but serve as welcome sanctuaries for other forms of wildlife as well.

The refuges range in size from a donated two-acre island that has a bird colony in Door County, Wis. to a million-acre area in Alaska. The Necedah refuge, established in 1939, or before the all-out wetland program, is one of the larger ones outside Alaska, according to Brown.

IN THESE DAYS, just as in the heyday of the lumber barons who battled the great conservationist Teddy Roosevelt, there is considerable opposition to taking lands out of commercial use into the public domain. For this reason, we were interested in two major issues about the Necedah refuge: (1) What kind of lands were these before the Bureau of Sport Fisheries and Wildlife and the Fish and Wildlife Service "socialized" them for the unharassed use of nature's creatures?, and (2) what use, if any, can people now make of the refuge?

The Necedah refuge area was once a vast, open peatbog, interspersed with small, wooded islands. These islands had the only timber to be found. Efforts were made to develop the area for farming. A gigantic drainage project was set up, with many miles of ditches and water control structures.

LAND WAS CLEARED by burning. Vast peat fires resulted, destroying the humus and causing most of the soil to be reduced to an almost sterile sandy condition. The story is similar to that of other former wetlands, but perhaps a bit more drastic.

Willows, aspen and jack pine took over, until the land no longer had its original characteristics.

The Bureau of Sport Fisheries and Wildlife has done a monumental job in building a useful wildlife refuge from these meager beginnings. Dikes and water control structures were built for impoundments in which water levels could be controlled for the maximum benefit of ducks and geese.

Some areas are periodically drained for seeding with wild and and domestic millet and other moist soil plants. Toward fall these areas are reflooded to provide a rich feeding ground for the waterfowl visitors.

WILD CELERY, sago pondweed, and wild rice are encouraged by proper marsh management. Agricultural units have also been developed through careful land management and soil building processes. They provide supplementary foods such as corn, buckwheat, rye and legumes.

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(Continued on page 8)

WILD TURKEY, A BIRD THAT used to feed the American Indian and our early white settlers seemed headed for total extinction until the various federal wildlife refuges stepped into the picture. Today the gobbler of the Pilgrim Fathers is definitely on the comeback trail.

WILMA CLEMENS, Nekoosa, Wis. was one of 20 happy hunters to bag a wild gobbler during Wisconsin's first turkey season in the memory of man. Some 16,000 acres of the Necedah refuge were opened for the hunt, held in 1966.

Wildlife refuge . . .

(Continued from page 1)

and commercial value from this formerly useless area. Some 30,000 to 40,000 visitors come yearly, to watch a bit of America which they can no longer find outside of refuges such as this. An observation tower has been built by the refuge staff for such bird watchers, and a surrounding picnic area with tables and fireplaces was under construction.

While Dave and I were on the tower platform three luckless duckhunters came up from the legal hunting area to the south of the refuge. "We wanted to at least look at some birds," said one. Discreetly they had left their guns in their car.

"Do you have any problem with poachers?" I asked Dave later.

"ONCE IN A WHILE some stray over from the legal hunting area, but they probably aren't aware that they are within the refuge." Dave answered charitably. "However, sometime back I did catch a guy, calmly blasting away at geese right in the middle of the refuge."

About 10,000 people came to the refuge a year ago to harvest a bumper crop of blueberries. Some $70,000 worth of pulpwood is taken out annually by contracting loggers. Fishing is allowed, and so is deer hunting as a herd management measure.

And duck hunting itself, which the refuges are trying to make available, is a great economic boost to the Necedah area as well as to all the wetlands. It is estimated that duck hunters alone spend $87 million a year in the wetlands for items such as food, lodging, travel and equipment.

Those are the values of Necedah to humans. To the feathered and furred "vanishing Americans" the value of such refuges is incalculable. It is a matter of life or death to the 20,000 annual goose and 30,000 duck visitors, to the growing flock of wild turkeys, to the already rare cranes and other wildlife at Necedah, and to hundreds of thousands of waterfowl in the other wetlands refuges.

THE NECEDAH WILD turkey flock is a good example of this value. Earlier attempts in the 1920's to stock turkeys in Wisconsin were not successful. However in 1954 and 1956 the Wisconsin Conservation Department tried again, releasing birds brought in from Pennsylvania on the Necedah Refuge and adjacent state-managed Meadow Valley Wildlife Area. This stocking was successful, and with the flock now numbering over 2,000 some of these turkeys are being trapped and released in other parts of the state to restore this once plentiful bird in its natural Wisconsin habitat.

I left Necedah feeling hopeful. Even my grandson, who is now only an infant, will be able to come to places like this to hear the thundering wing beat and the wild call of the Canada goose, and the gobble of the kind of turkey that fed the Pilgrim fathers.

TIMBER SALES REVENUE -- Dave Brown, Manager of the Necedah Wildlife Refuge, is shown Tuesday morning, as he presented Juneau County Treasurer Eleanor Sullivan with a check in the amount of $6,519.67. The money was 25 percent of the receipts of the Refuge for the past year, mostly from timber sales, and are paid to the county in lieu of taxes.

The money will be used toward county roads and school expenses and will be distributed to various townships in the county. (Staff Photo)

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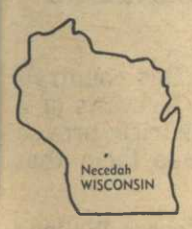

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